Infinity

Interlude Series

IL120s Subwoofer

Service Manual

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Woodbury, New York 11797

REV 6 5/2005

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SPECIFICATIONS

IL120s Frequency Response:	28Hz - 150Hz (±3dB)
Maximum Amplifier Output:	500 watts (20Hz - 150Hz with no more than 0.1% THD)
Crossover Frequencies:	50Hz - 150Hz, 24dB/octave, continuously variable
Driver:	12" C.M.M.D.
Dimensions (H x W x D):	17-1/2" x 17-1/4" x 19-3/4"
Weight:	45 lb (20.5kg)
Optional Accessory:	Bass Optimization
	Test & Measurement Kit:
	Part Number: 335852-002

DETAILED SPECIFICATIONS

IL120 subwoofer 500W Powered Sub/ Plate Amp

LINE VOLTAGE	Yes/No	Hi/Lo Line	Nom.	Unit	Notes
US 120vac/60Hz	Yes	108-132	120	Vrms	Normal Operation
EU 230vac/50-60Hz	Yes	207-264	230	Vrms	Normal operation, MOMS required

Parameter	Specification	Unit	QA Test Limits	Conditions	Notes
Amp Section					
Type (Class AB, D, other)	AB	---		HC-BASH Power Supply	
Load Impedance (speaker)	4	Ohms		Nominal	Resistor Load
Rated Output Power	500	Watts	450	@30Hz, THD 15%, Limiter defeated	
THD@ 400W	5	%	10	22k filter, 30Hz, LPF "On"	
THD @ 1 Watt	0.05	%	0.3	22k filter, 30Hz, LPF "On"	
Polarity (Input vs Output)	0	deg.	0˚ ±20	@40Hz; LPF "On": 150Hz; Phase "0"	.250 faston (+).....205 faston (-)
DC Offset	1	mV-DC	1.5	@ Speaker Outputs	
Damping factor	> 50	DF			
Input Sensitivity					
Input Frequency	30	Hz	30	Nominal Freq.	1 input driven
Line Input	43	dBr	±2	STO 1 Watt, @30Hz	LPF "On", BOS "Off"
Speaker/Hi Level Input	21	dBr	±2	STO 1 Watt, @30Hz	LPF "On", BOS "Off"
Signal to Noise					
SNR-A-Weighted	100	dBA	90	relative to 400W output	A-Weighting filter
SNR-unweighted	90	dBr	80	relative to 400W output	22k filter
SNR rel. 1W-unweighted	70	dBr	60	relative to 1W output	22k filter
Residual Noise Floor	2	mVrms	3	Volume @max, using RMS reading DMM/VOM (or A/P)	
Residual Noise Floor	1	mVrms(max)	3	Volume @max, w/ A/P Swept Bandpass Measurement (Line freq.+ harmonics)	
Input Impedance					
Line Input	10k	ohms		Nominal	
Speaker/Hi Level Input	1k	ohms		Nominal	
Active Filters					
Low Pass (fixed or variable)	variable	--			
Frequency	46-150	Hz			
Slope	24	dB/Octave			
Q	0.7	Damping			
Subsonic filter (HPF)	fixed	--			
Frequency	29.7	Hz			
Slope	12	dB/Octave			
Q	1	Damping			
Line Out Filter (HPF)	yes	--		Output to satellites	
Frequency	80	Hz		switchable	
Slope	12	dB/Octave			
Q	0.707	Damping			
Friend Circuit	fixed	--			
Frequency	50.1	Hz		notch filter	
Slope	-6.25	dB			
Q	1.866	Damping			
Parametric EQ (BOS)					
Frequency Pot	yes	--		21 detent pot (0.1 oct. steps)	
Range	20-80	Hz	functional		
Level Pot	yes	--	--	21 detent pot (0.5dB steps)	
Range	0 to -14	dB	functional		
Width(Q) Pot	yes	--	--	21 detent pot (5steps/0.1 octave)	
Range	0.05-0.5	octave	functional		
Features					
Main Power On/Off Switch	rocker	--	funtional		
Line/Spkr Input Select Switch	toggle	--	funtional		
Polarity Switch	toggle	--	funtional		
RABOS Bypass Switch	toggle	--	funtional		
Low Pass Filter Switch	toggle	--	funtional		
Limiter (yes/no)	yes				
Output power limited to	450	Watts	400	THD <10%	
Output Volume Control					
Volume Control Pot	10k	ohm		Locate at front	
Detent (center/#)	no	--			
Taper (lin/log)	A-taper	--		D-shaft pot for knob fitting	

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DETAILED SPECIFICATIONS (Cont.)

Parameter	Specification	Unit	QA Test Limits	Conditions	Notes
@minimum setting	no output	dB			
Input/Output Configuration					
Line In (L,C,R,AC3,Mono)	L,R	--		RCA phono jack, gold plated	
Spkr/Hi Level In (L,C,R,mono)	L,R	--		Binding posts	
Line Outputs (L,C,R)	L,R	--		RCA phono jack, gold plated	High pass filtered, 2nd order
Hi Level Out	L,R	--		Binding posts	
Signal Sensing (ATO)					
Auto-Turn-On (yes/no)	yes	--		Under the condition that bias power never exceed 15W	
ATO Input Frequency	30	Hz			
ATO Level	8/100	mV	15/120	@30Hz into single Line/Speaker Input	LPF "On", BOS "Off"
ATO Bandwidth	300	Hz	350	ATO-LPF for noise immunity	LPF "On", BOS "Off"
ATO Turn-on time	5	ms	10	Amp connected and AC on, then input signal applied	
Auto Mute/ Turn-OFF Time	15	minutes	20	Time before muting, after signal is removed	
Power on Features					
Power on Delay time	2	sec.	3	AC Power Applied	
Power on LED	yes	--		Bi-color LED located at front	
Normal On	green	color			
ATO	red	color		"Active": green; "Standby": red	
Transients/Pops					
ATO Transient	10	mV-peak	N/P	@ Speaker Outputs	
Turn-on Transient	100	mV-peak	1V-pp	@ Speaker Outputs	AC Line cycled from OFF to ON
Turn-off Transient	100	mV-peak	1V-pp	@ Speaker Outputs	AC Line cycled from ON to OFF
Efficiency					
Stand-by Input Power	14	Watts	15	@ nom. line voltage	
AC Power Cons.@1W	26	Watts	28	@ nom. line voltage	
Power Cons.@400W	709	Watts	800	@ nom. line voltage	
Efficiency	56	%	50		
Protection					
Short Circuit Protection		--	functional	Direct short at output	
Thermal Protection		--	functional	@1/8 max unclipped Power	
DC Offset Protection		--	functional	DC present at Speaker Out leads	
Line Fuse Rating	4	Amps		Type-T or Slo Blo	

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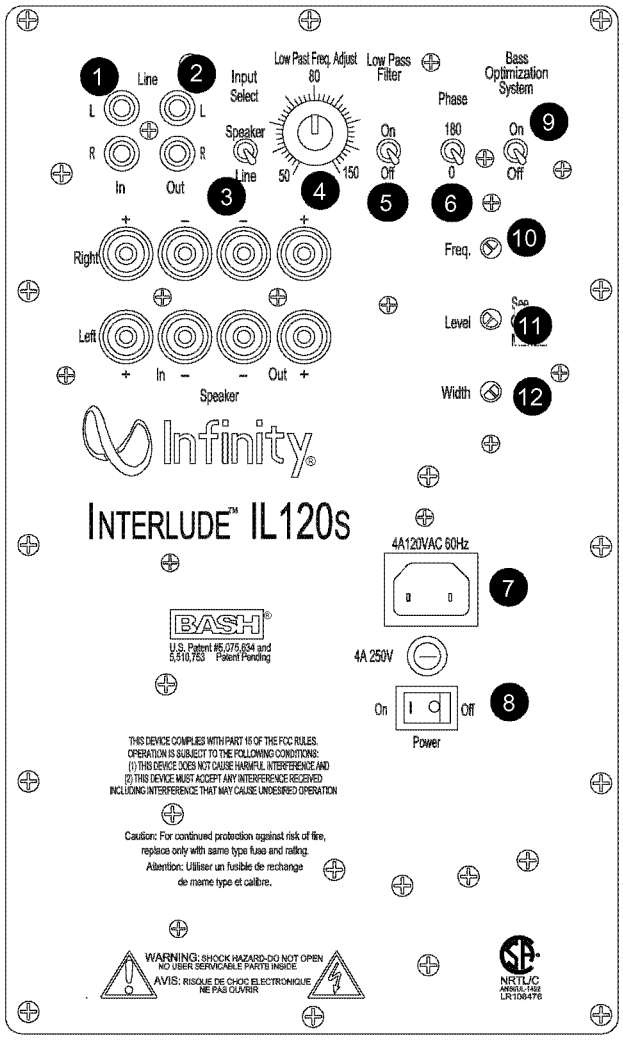
CONTROL and CONNECTIONS

Rear Panel

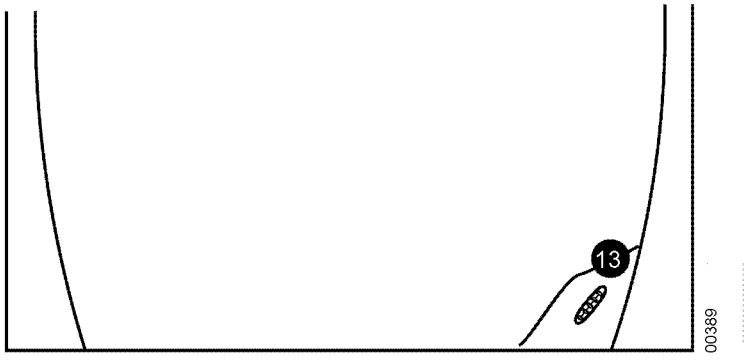


1. Line-Level Inputs
2. Line-Level Outputs
3. Input Selector
4. Low-Pass Frequency Adjustment
5. Low-Pass Filter Selector
6. Phase Switch
7. AC Cord Input
8. Power Switch

Bass Optimization Controls

9. Bass Optimization System Selector
10. Center-Frequency Adjustment
11. Bass Optimization System Level
12. Bandwidth Adjustment

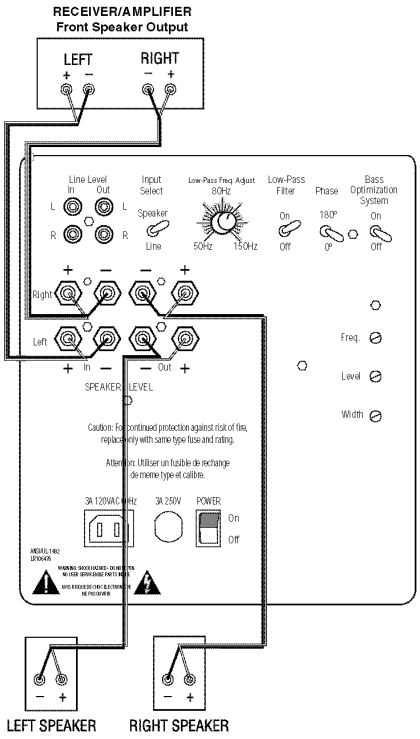
Front Panel



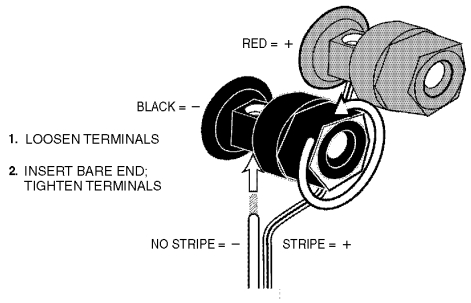
13. Subwoofer-Level Control

CONNECTIONS

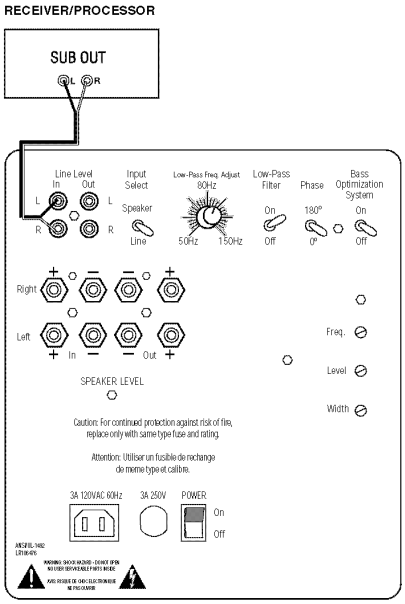
If your receiver/processor does not have subwoofer outputs for the left and right channels or an LFE output:



- Set Input Selector to " Speaker"
- Set Low-Pass Filter to " On."



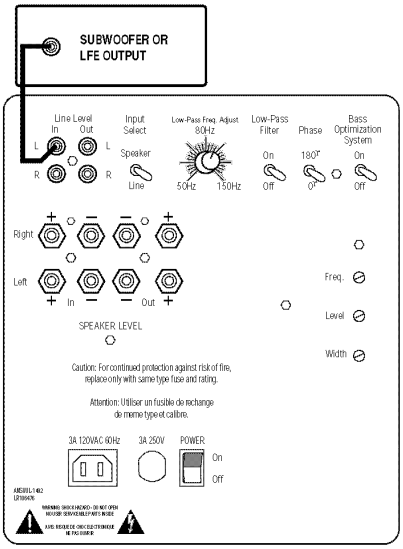
If your receiver/processor has subwoofer outputs for the left and right channels:



- Set Input Selector to " Line."
- Set Low-Pass Filter to " On".

NOTE: Some receivers have a single subwoofer output (do not confuse this with a single LFE output as described below). In that case, it is recommended that you use a Y connector (not included) to maximize performance.

If you have a Dolby* Digital or DTS® receiver/ processor with a low-frequency-effect (LFE) output:



- Set Input Selector to " Line."
- Set Low-Pass Filter to " Off"

NOTE: In this case, you do not need to use a Y connector. Simply connect the LFE output on your receiver/processor to either the left or right input on the subwoofer.

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OPERATION

Power On

Plug your subwoofer's AC cord into a wall outlet. Do not use the outlets on the back of the receiver.

Initially set the subwoofer's Level Control ⓭ to the "0" position.

Turn on your sub by pressing the power button ❽ on the rear panel.

Turn on your entire audio system and start a CD or movie soundtrack at a moderate level.

Adjust Gain

Turn your subwoofer's Level Control ⓭ up to the "5" position (half way). If no sound emanates from the subwoofer, check the AC-line cord and input cables. Are the connectors on the cables making proper contact? Is the AC plug connected to a "live" receptacle? Has the power button ❽ been pressed to the "On" position? (Note: The Level Control on the front panel will turn green when the power is on.) Once you have confirmed that the subwoofer is active, proceed by playing a CD, record or cassette. Use a selection that has ample bass information.

Set the overall volume control of the preamplifier or stereo to a comfortable level. Adjust the subwoofer's Level Control ⓭ until you obtain a pleasing blend of bass. Bass response should not overpower the room but rather be adjusted so there is a harmonious blend across the entire musical range. Many users have a tendency to set the subwoofer volume too loud, adhering to the belief that a subwoofer is there to produce lots of bass. This is not entirely true. A subwoofer is there to enhance bass, extending the response of the entire system so the bass can be felt as well as heard. However, overall balance must be maintained or the music will not sound natural. An experienced listener will set the volume of the subwoofer so its impact on bass response is always there but never obtrusive.

Crossover Adjustments

Low-Pass Frequency Adjustment Control ❹ – The Low-Pass Control determines the highest frequency at which the subwoofer reproduces sounds. If your main speakers can comfortably reproduce some low-frequency sounds, set this control to a lower frequency setting, between 50Hz – 100Hz. This will concentrate the subwoofer's efforts on the ultradeep bass sounds required by today's films and music. If you are using smaller bookshelf speakers that do not extend to the lower bass frequencies, set the Low-Pass Frequency Adjustment Control to a higher setting, between 120Hz – 150Hz.

Note: This control will have no effect if the Low-Pass Filter Switch ❺ is set to "Off." If you have a Dolby Digital or DTS processor/receiver, the Low-Pass Frequency is set by the processor/receiver. Consult your owner's manual to learn how to view or change this setting.

Phase Control

The Phase Switch ❻ determines whether the subwoofer speaker's piston-like action moves in and out with the main speakers, 0°, or opposite the main speakers, 180°. Proper phase adjustment depends on several variables such as room size, subwoofer placement and listener position. Adjust the phase switch to maximize bass output at the listening position.

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BASS OPTIMIZATION SYSTEM™

Infinity's Bass Optimization System is a simple-to-use, yet sophisticated, low-frequency calibration system. Each Interlude subwoofer contains a parametric equalizer that you can adjust following the directions below. By following these instructions, you can improve the sound of your system.

The Bass Optimization System Goal

It is a fact of audio that what we hear at low frequencies is determined as much or more by the listening room than by the loudspeaker itself. Placement of the loudspeakers and listeners and the acoustical characteristics of the room surfaces are all important determinants of bass quantity and quality. In most practical situations, there is little that can be done about this, except for patient trial-and-error repositioning of the loudspeakers and listeners. Usually, the practical constraints of a living space and the impracticality of massive acoustical treatment mean that equalization is the only practical solution.

Professional sound engineers routinely employ sophisticated measurement systems and equalizers to optimize speakers to the installation. This was never practical for the home audiophile. This is why the Bass Optimization System was created. It enables you to identify the dominant low-frequency response characteristic of your room. Once you know the problem, the Bass Optimization System provides the tools needed to optimize the low-frequency characteristics of the speakers to the room they are in, exactly as the professional sound engineers do it.

Preparations

Before beginning the bass tests, please check the following:

- Make sure all three Bass Optimization System controls on the subwoofer are turned fully clockwise.
- Make sure the loudness contour (if any) on your receiver/processor/preamp is turned off.
- Set the tone controls (Bass and Treble) to their center or flat positions.
- Bypass all surround and effects features of your receiver/processor/preamp or set to Stereo Bypass.
- If you are using a multichannel surround processor or receiver, make sure all bass-management features are properly set. The Audio channels should all be set to "Small" or "High-Pass" and the subwoofer set to "On."
- Set the Bass Optimization System selector 9 to "On."

For best results, it is recommended that all major furnishings are in place and that all doors and windows in the listening area are in their normal positions. That is, if you normally listen to music with all doors closed, then this is how they should be during this procedure.

To solve a problem, it helps to first identify whether you have one and, if so, what it is. First, play a variety of music and films with energetic bass sounds, like bass guitar, kick drum, keyboards, etc. A kick drum should produce a tight "thump" not a flabby "boom". Bass melody or harmony lines should have notes that are about equally loud. If some notes disappear, or stand out because they are consistently too loud, there is a problem. Disappearing notes have to be handled by moving the listening position, or the loudspeakers, to slightly different locations. Often, but sadly not always, this will be enough. Excesses in bass tend to be most annoying, and energetic resonances that cause "boomy" or "lumpy" bass can be truly aggravating over a period of time. Infinity's Bass Optimization System can fix this.

So, the first step is to exercise your music collection, and listen for low-frequency problems that crop up in several different recordings. Something that only happens in one recording is likely to be a problem in the recording – it happens! If you identify something that is consistently wrong, select a record that shows it very clearly, and put your CD/DVD player into a repeat mode (A-B repeat is especially helpful, because you can isolate a short musical passage).

Set the Bass Optimization System Bandwidth adjustment 12 to a middle position (10 clicks from a fully clockwise position) and set Level adjustment 11 for a – 6dB (8 clicks from a fully clockwise position). Then, while the music is playing, sit in your favorite chair and have somebody else slowly adjust the Frequency control 10 from fully clockwise to fully counter-clockwise. At a certain frequency, you should hear the problem lessen and the overall bass performance improve. When you are satisfied that you have found the best frequency, have your assistant vary the Level 11 slowly up and down until you have maximized the improvement. If you have really keen ears, you can also have the Bandwidth control 12 adjusted for maximum benefit.

While the Bass Optimization System allows the listener to fine-tune the bass response to sound best in a particular room, some listeners don't have the skill or desire to adjust their system by ear. In order to facilitate quicker and more accurate results, Infinity has developed an optional test and measurement kit that allows the user to perform a series of measurements and aids him/her in properly setting the Bass Optimization System controls. With the addition of this kit, the Bass Optimization System becomes truly room-adaptive. The kit consists of the following: a test CD, a sound-level meter that is specifically calibrated for low frequencies, and something we call a "Q-Finder," a device to help find the width of the measured curve and, finally, a measurement template. It works as follows. The listener

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BASS OPTIMIZATION SYSTEM™ (Cont.)

plays the tones from the test CD and records the relative output level of each test tone, using the sound-level meter, on the provided measurement template. After all the tones are complete, the template contains a response curve for the frequencies below 100Hz. The user simply notes the frequency of the largest bass peak, calculates the correct amount of attenuation, and uses the "Q-Finder" to determine the width of the curve. These three values are dialed into the Bass Optimization System controls located on the speaker. The entire process takes less than twenty minutes.

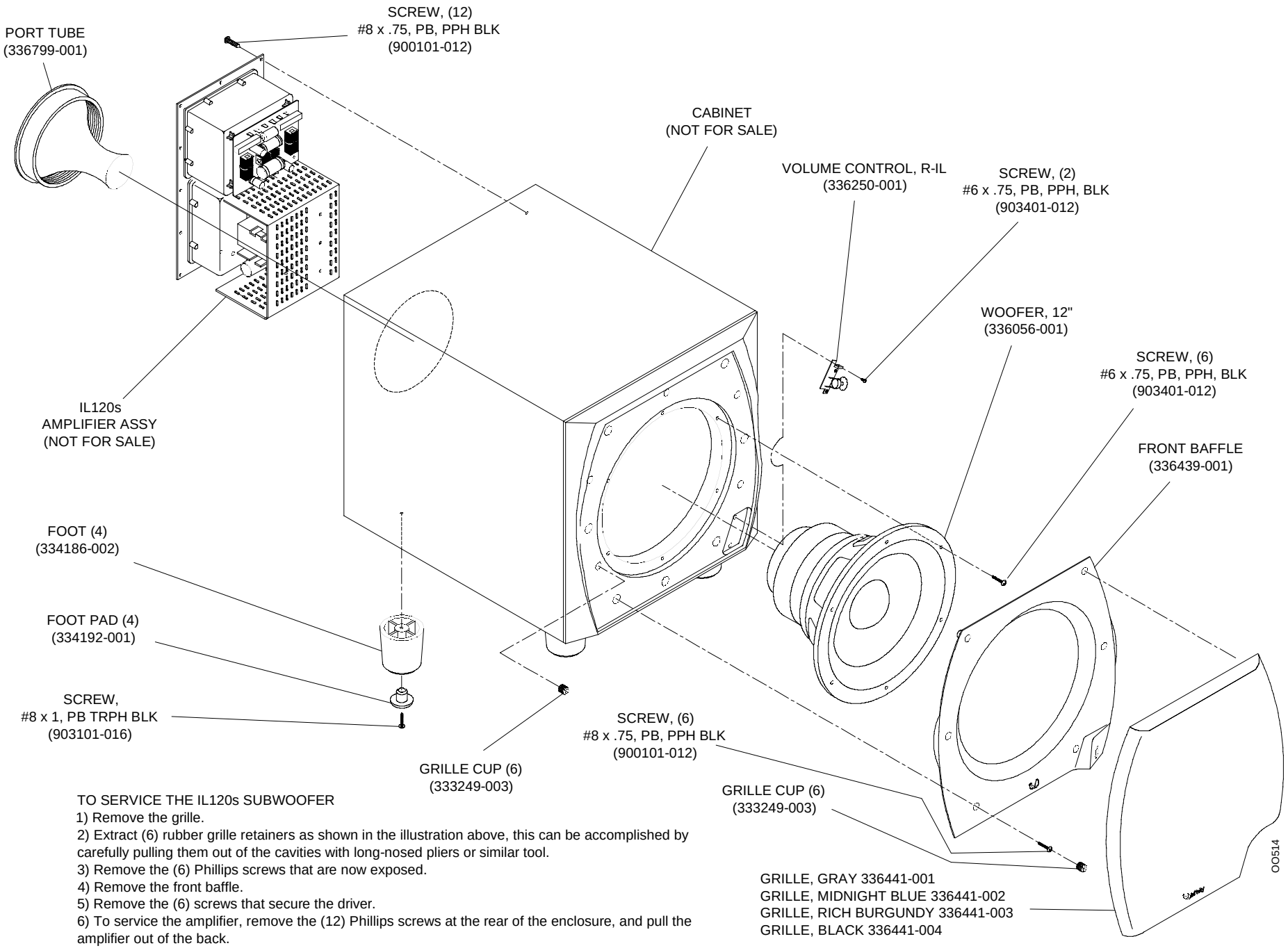
If your dealer does not stock the Bass Optimization System test and measurement kit, you may purchase it directly from Infinity. U.S. residents can visit our Web site at www.infinitysystems.com or call 1-800-553-3332. Canadian residents should contact their dealer or call 1-800-567-3275.

Ask for Infinity part number 335852-002.

MECHANICAL/PACKAGING PARTS LIST

Description	Part Number
MECHANICAL	
IL120s COMPLETE AMPLIFIER ASSY	N/A
WOOFER, 12”, C.M.M.D., shielded, 3.4 ohms ±10%	336056-001
VOLUME CONTROL, R-IL	336250-001
FRONT BAFFLE	336439-001
PORT TUBE	336799-001
GRILLE CUP (12)	333249-003
GRILLE, GRAY	336441-001
GRILLE, MIDNIGHT BLUE	336441-002
GRILLE, RICH BURGUNDY	336441-003
GRILLE, BLACK	336441-004
PACKAGING	
OWNER’S MANUAL, IL100S/IL120S	335839-001
WARRANTY CARD	335841-001
SURVEY CARD	330033-001
CARTON	336497-001
FOOT (4)	334186-002
FOOT PAD (4)	334192-001
PAD, END, TOP	336496-001
PAD, END, BOTTOM	336496-002
GRILLE ASSEMBLY	See Options Above
POWER CORD, 120V US-15’	336658-115
RABOS SCREW DRIVER	335848-002

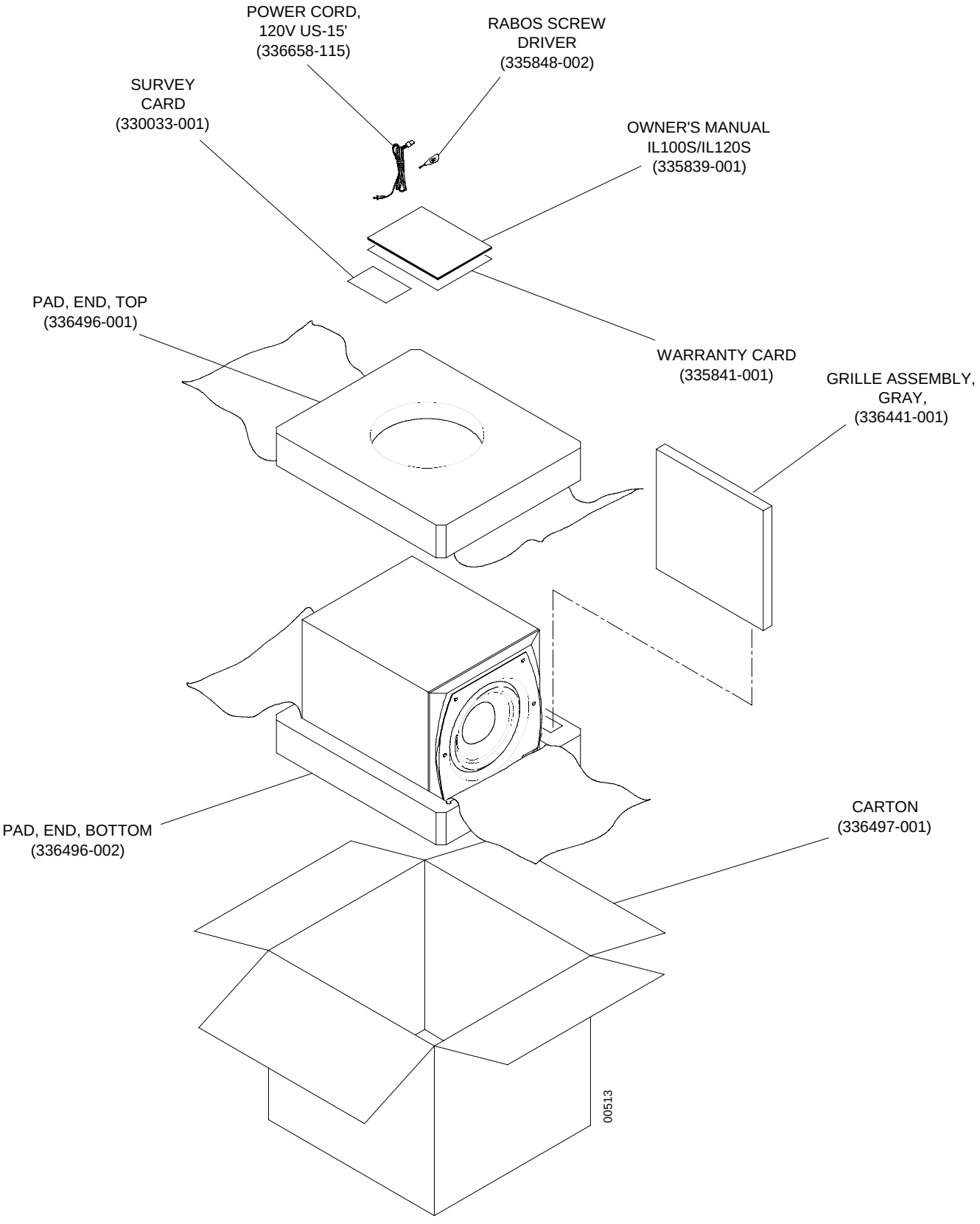
EXPLODED VIEW



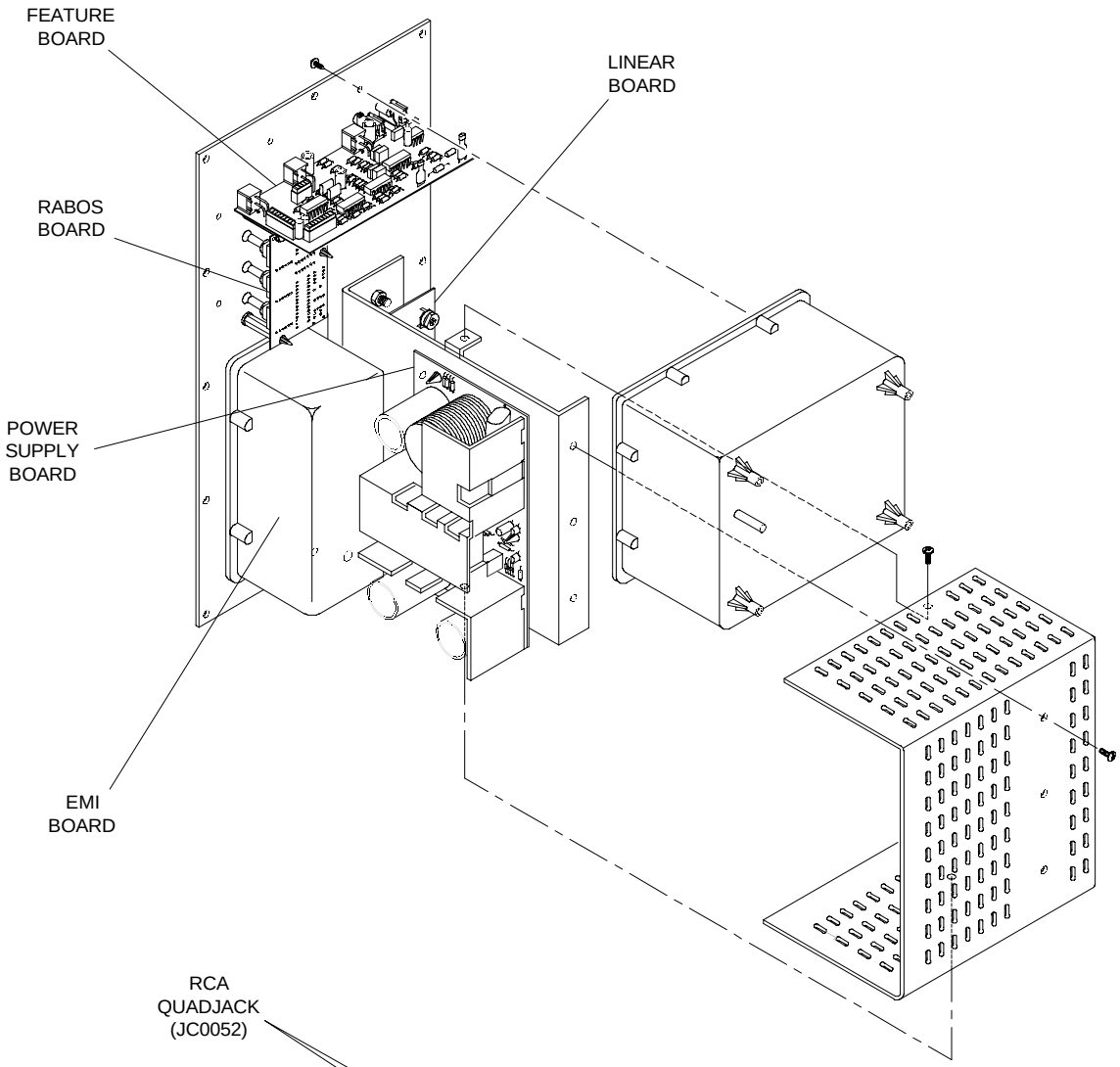
TO SERVICE THE IL120s SUBWOOFER

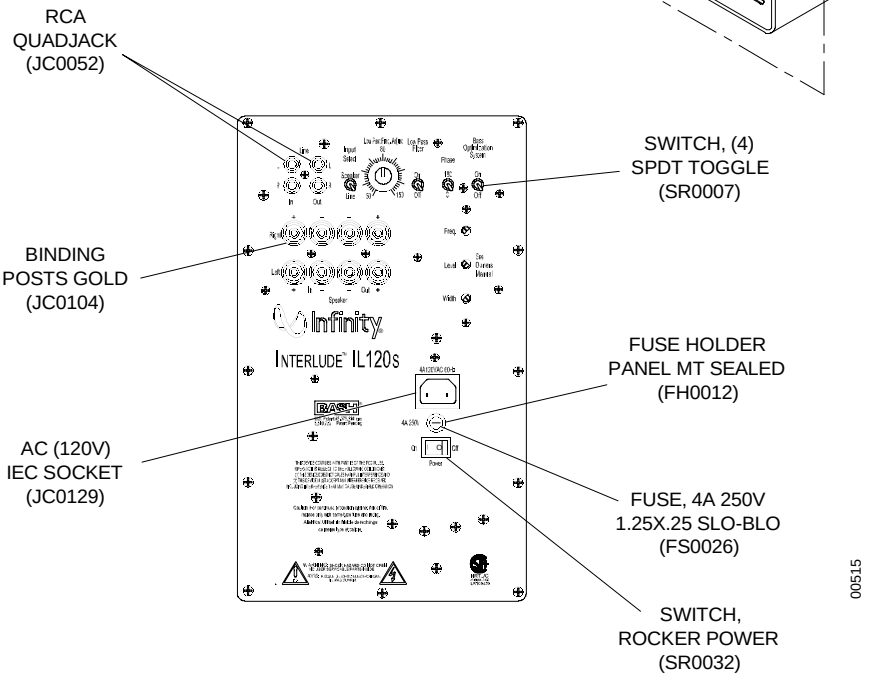
1) Remove the grille.
2) Extract (6) rubber grille retainers as shown in the illustration above, this can be accomplished by carefully pulling them out of the cavities with long-nosed pliers or similar tool.
3) Remove the (6) Phillips screws that are now exposed.
4) Remove the front baffle.
5) Remove the (6) screws that secure the driver.
6) To service the amplifier, remove the (12) Phillips screws at the rear of the enclosure, and pull the amplifier out of the back.

PACKAGING


POWER CORD,
120V US-15'
(336658-115)
RABOS SCREW
DRIVER
(335848-002)
SURVEY
CARD
(330033-001)
OWNER'S MANUAL
IL100S/IL120S
(335839-001)
PAD, END, TOP
(336496-001)
WARRANTY CARD
(335841-001)
GRILLE ASSEMBLY,
GRAY,
(336441-001)
PAD, END, BOTTOM
(336496-002)
CARTON
(336497-001)
00513

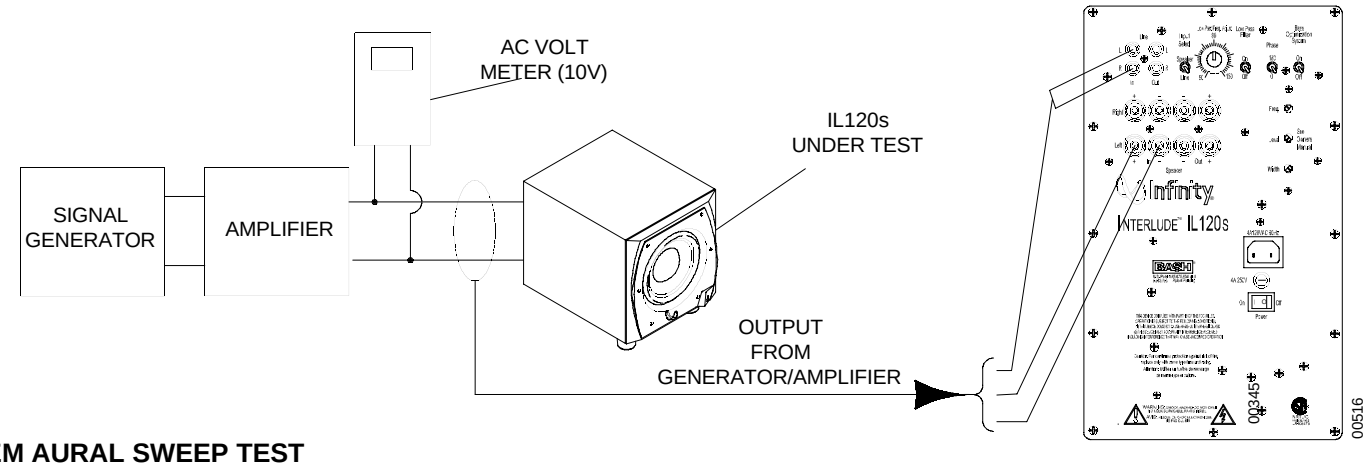
EXPLODED VIEW OF AMPLIFIER





FRONT VIEW

TEST SETUP and PROCEDURE



SYSTEM AURAL SWEEP TEST

Equipment needed:

- Function/signal generator/sweep generator
- Integrated Amplifier
- Multimeter
- Speaker cables

General Unit Function (UUT = Unit Under Test)

Switches/knobs on the amplifier faceplate:

Input Select to “Line”
Low Pass Filter to OFF
Bass Optimization system to OFF
Low Pass Frequency Adjust full CW (150Hz)
Phase switch – either position

1. From the signal generator, Connect both right and left line level inputs (RCA) to signal generator and UUT. Use Y-cable if necessary from mono source.
2. On the front of the unit, turn the LEVEL control full clockwise (0).
3. Turn on generator, adjust to **120mV, 30 Hz.**
4. Plug in UUT; turn the power switch ON. LED should be Red. Turn LEVEL control full counterclockwise (10)
5. LED should now be Green; immediate bass response should be heard and felt from rear port tube opening.
6. Turn off generator, turn LEVEL control fully clockwise (0), disconnect RCA cable.
7. Connect one pair of speaker cables to Speaker Level input terminal on UUT. Cables should be connected to an integrated amplifier fed by the signal generator.
8. Switch Input to “Speaker”.
9. Turn on generator and adjust so that speaker level input at the amplifier is **2.2V, 30 Hz**. Turn LEVEL control full counter-clockwise (10)
10. Green LED should light, immediate bass response should be heard and felt from the port tube opening.

Sweep Function

1. Follow steps 7-10 above, using a sweep generator as a signal source.
2. Sweep generator from 20Hz to 20kHz. Listen to the cabinet and drivers for any rattles, clicks, buzzes or any other noises. If any unusual noises are heard, remove woofer and test.

Driver Function (Woofer)

1. Remove woofer from cabinet; detach + and - wire clips. See page 12 for removal instructions.
2. Check DC resistance of woofer; it should be **3.4 ohms**±10%.
3. Connect a pair of speaker cables to driver terminals. Cables should be connected to an integrated amplifier fed by a signal generator. Turn on generator and adjust so that speaker level output is 5.0V.
4. Sweep generator from 20Hz to 1kHz. Listen to driver for any rubbing, buzzing, or other unusual noises.

Service Bulletin

Service Bulletin INF2001-04 Rev2 – May 2005 | Warranty labor rate: MINOR repair

To: All Infinity Service Centers

Model: Interlude and Intermezzo IL50, IL60, IL100s, IL120s, IM1.2s, IM4.1t

Subject: No Output

In the event you receive an Interlude or Intermezzo loudspeaker with the complaint: "There is no output, and the LED on the volume control does not light, red or green", check the item listed below:

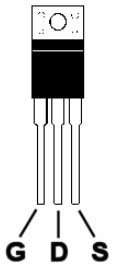
1) Check the line fuse to make sure it's not damaged. Replace if necessary

IL50, IL100s	3A	Infinity part# FS0022
IL60, IL120s	4A	Infinity part# FS0026
IM1.2s, IM4.1t	6A	Infinity part# FS0027

If the fuse is intact, or the unit still does not function, check the power supply portion of the amplifier circuit, described below:

2) Refer to the Exploded view page for detailed instructions on amplifer removal from the enclosure.
3) Remove all connectors and screws necessary to detach the Power Supply PCB from the main chassis heatsink. Squeeze the heads of the plastic standoffs with long-nosed pliers to detach the PCB from the heatsink.
4) Refer to the illustration on page 2. Check the DC resistance of following parts, in circuit, with a DMM:

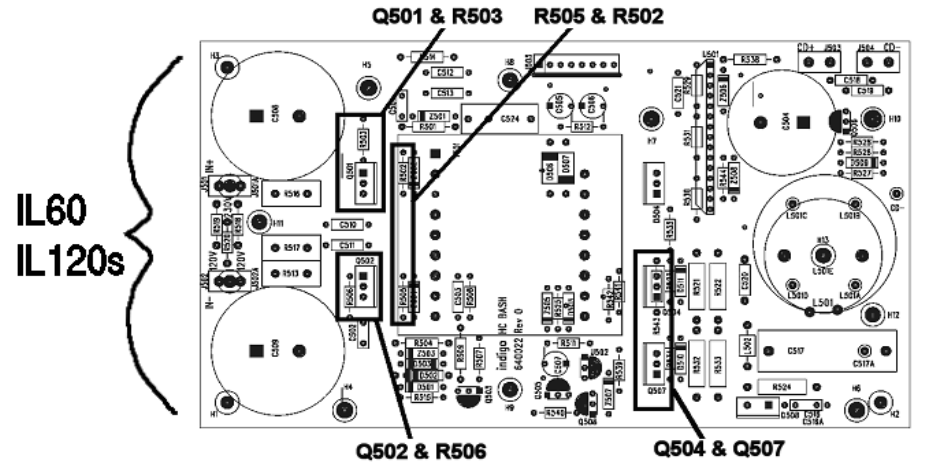
IL120s IL60	IRF740 MOSFETS **Q501, Q502** Infinity part# QM0055	D to S or S to D G to S or S to G D to G or G to D	Should measure >28K ohms* Should measure >400 ohms Should measure >28K ohms*
	22 Ohm 0.6W Resistors **R506, R503** Infinity part# RM0340	Should measure 22 ohms ±1%	
	422 Ohm 1/4 watt Resistors **R505, R502** Infinity part# RM0397	Should measure 422 ohms ±1%	
IL50 IL100s	IRF740 MOSFETS **Q4, Q5** Infinity part# QM0055	D to S or S to D G to S or S to G D to G or G to D	Should measure >28K ohms* Should measure >400 ohms Should measure >28K ohms*
	22 Ohm 0.6W Resistors **R17, R20** Infinity part# RM0340	Should measure 22 ohms ±1%	
	475 Ohm 1/4 watt Resistors **R16, R19** Infinity part# RM0075	Should measure 475 ohms ±1%	
IM1.2s IM4.1t	IRF740 MOSFETS **Q403,404,406,407** Infinity part# QM0055	D to S or S to D G to S or S to G D to G or G to D	Should measure >28K ohms* Should measure >400 ohms Should measure >28K ohms*
	22 Ohm 0.6W Resistors **R407,410,414,417** Infinity part# RM0340	Should measure 22 ohms ±1%	
	365 Ohm 1/4 watt Resistor **R408,411,415,418** Infinity part# RM0072	Should measure 365 ohms ±1%	

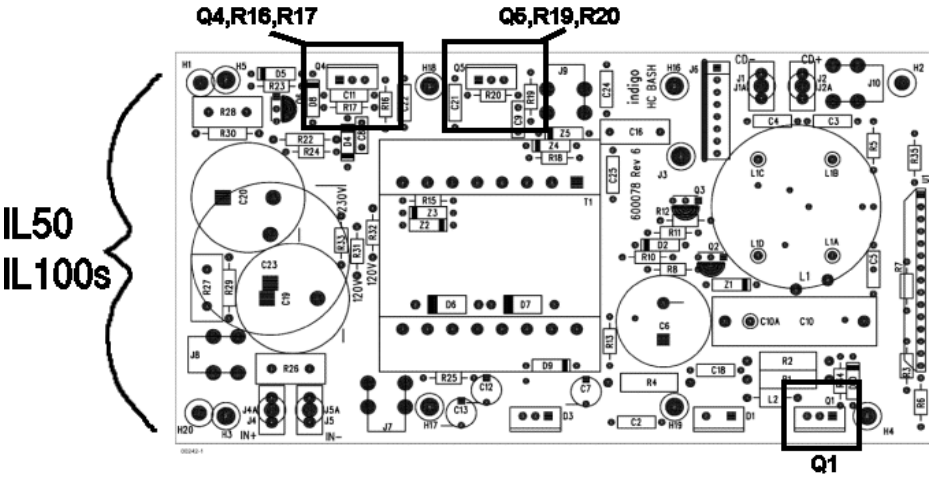


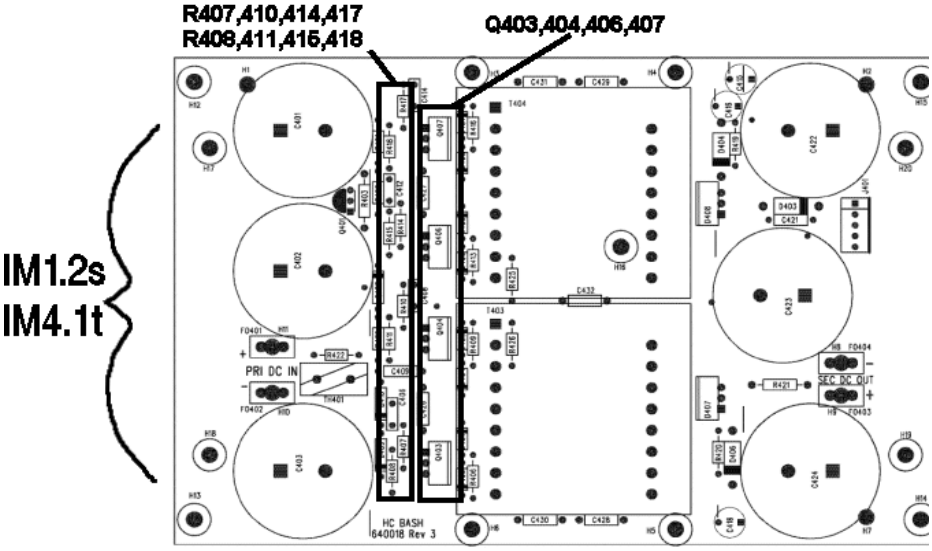
* The two transistor leads should be shorted together before these measurements are taken; the DMM leads will "charge" the circuit and the value may change, but should match the values above. Very low values that do not change indicate a shorted MOSFET.

5) Replace any defective parts above that show measured values lower than normal.
6) Reconnect J505 or J6 multicolor ribbon cable connector; remount the Power supply PCB; reconnect J501/502 or J4/J5 black/red Faston connectors.
7) All models except IM1.2S, IM4.1t: **temporarily DO NOT connect the pair of black/red "CD±" leads on the linear PCB).** Isolate the ends so they are not touching each other, or any conductive material. (For models IM1.2S, IM4.1t procedure is finished; replace amplifier).

8) Connect the subwoofer amplifier to an AC power source; turn the unit ON. Measure the DC voltage at the **"CD±"** wires; it should be 10-20 volts.
9) If it is 25 volts or greater, turn the amplifier OFF, disconnect from the power source, and replace:
   IL120S, IL60: **Q504,Q507** IRF640 on the Power Supply PCB, Infinity part# QM0015.
   IL50, IL100s: **Q1** IRF540 on the Power Supply PCB, Infinity part# QM0020.
10) If the voltage is normal, turn the amplifier OFF, disconnect from the power source, and reconnect the "CD±" leads.
11) Finish reassembling the amplifier, remount the heatsink, replace the amplifier in the cabinet and test the subwoofer.







TECH TIPS

Troubleshooting tips and solutions to common service problems

For models: IL50, IL100s, MSW-1, IL60, IL120s, IM2.6, IM3.5c **TIP# INFTT2003-03**

Intermezzo, Interlude and Modulus MSW-1 Power Supply Repair

Recommended for instances where the PCB has been damaged, for the above models only:

1) Change all MOSFETS, even for one device failure.
2) Clean and repair the PC board if required (See Tech Tip HCG2002-01 - Damaged Printed Circuit Boards).
3) Replace the Hybrid Bash Controller IC:

   U1 in models: IL50,IL100s,MSW-1,IM2.6,IM3.5c

   U501 in models: IL60, IL120s

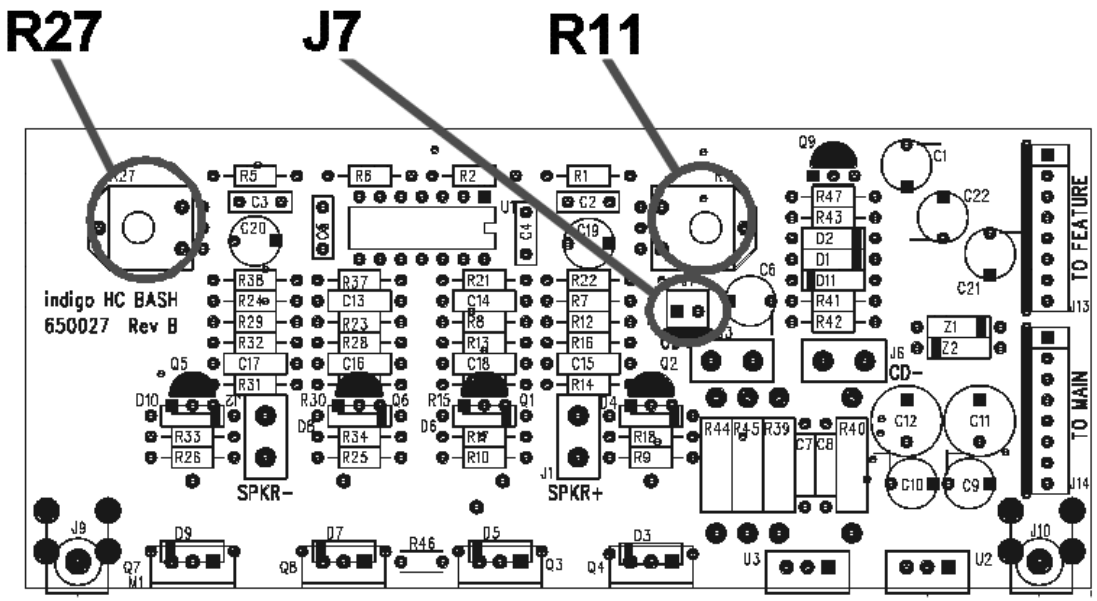
   Infinity part # **HC1011**

FAILURE TO FOLLOW THE INSTRUCTIONS ABOVE MAY RESULT IN UNIT FAILURE WHEN THE AMPLIFIER IS POWERED UP

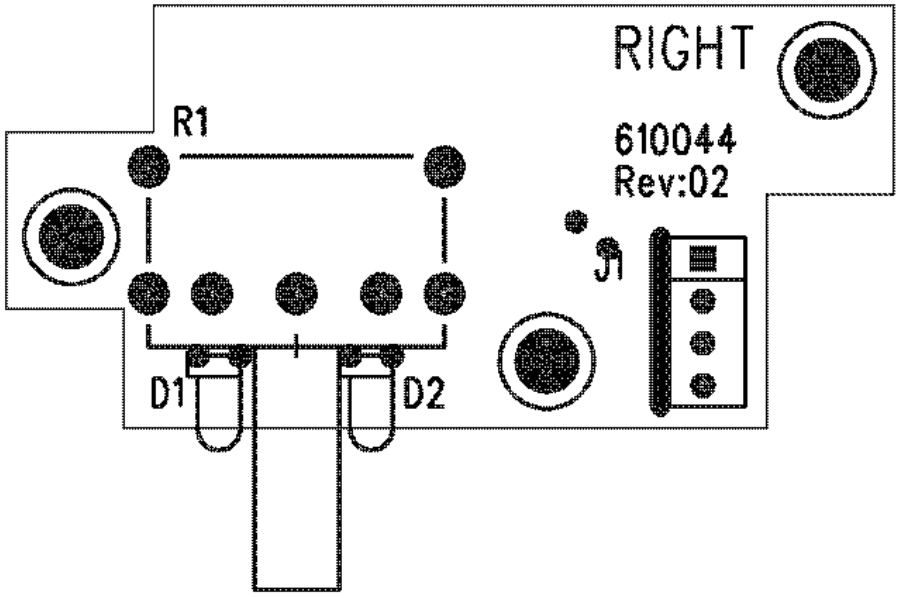
IL120s ADJUST BIAS PROCEDURE

(Mandatory when any output MOSFET transistors Q3,4,7,8 are replaced)

1. Amplifier should be unplugged and OFF.
2. Remove Amp assembly from cabinet; remove rear plastic cover if present. All wires exiting the cover can remain connected unless they will prevent you from removing the amplifier or accessing potentiometers on the Linear board PCB in the following steps.
3. Locate the Linear board assembly (PCB with the output transistors)
4. Adjust R11 and R27 fully Counter Clockwise. See diagram below.
5. Apply 120 VAC power to unit, Turn power switch ON.
6. Verify LED illuminates on the front gain control dial unless you have disconnected the plug.
7. Connect voltmeter set to DC millivolt range to twin pins on terminal J7, on Linear board
8. Verify initial voltage is less then 0.1 mV.
9. Adjust R11 Clockwise until voltmeter reads **0.3 mV** + the initial current from step #8.
10. Adjust R27 Clockwise until voltmeter now reads **0.6 mV** + the initial current from step #8.
11. Turn amplifier OFF. Disconnect AC power to unit.
12. Remove voltmeter from terminal J7.
13. Replace cover (if present), wires if disconnected, and replace amplifier back into cabinet.



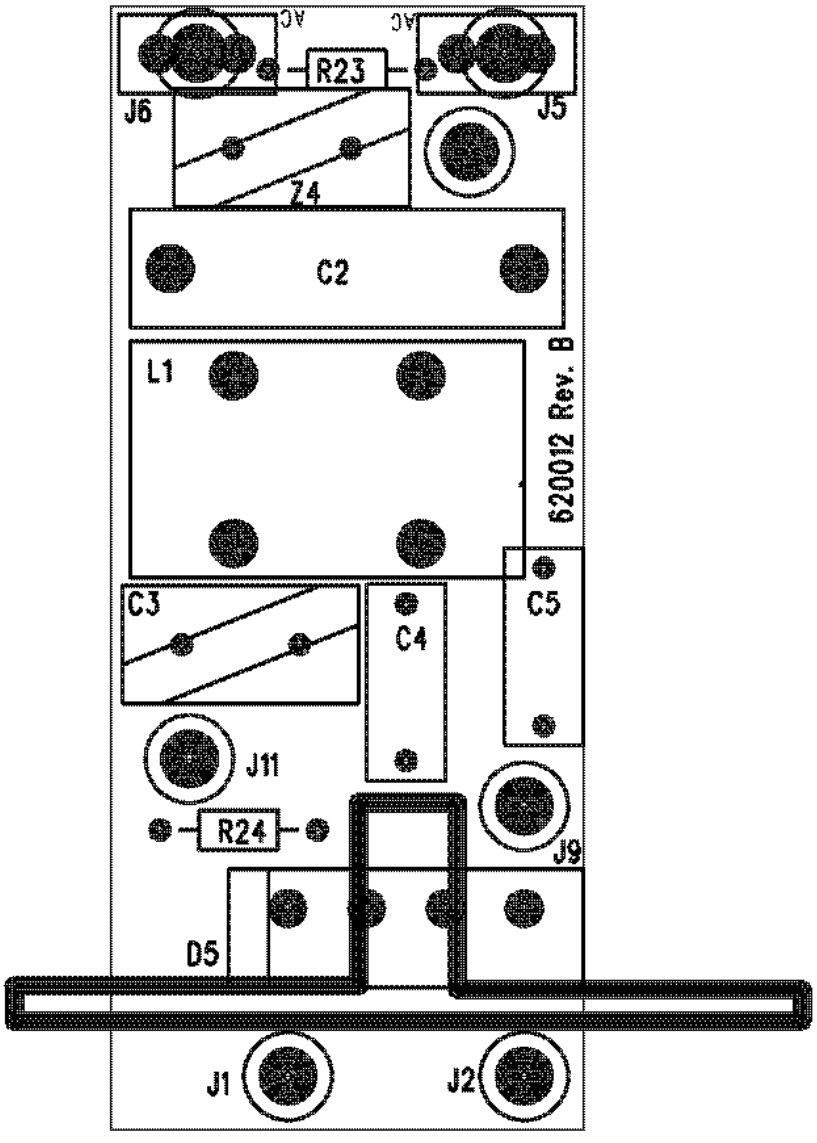
IL VOLUME RIGHT BOARD



IL Volume Right Board

00383-1

EMI FILTER BOARD

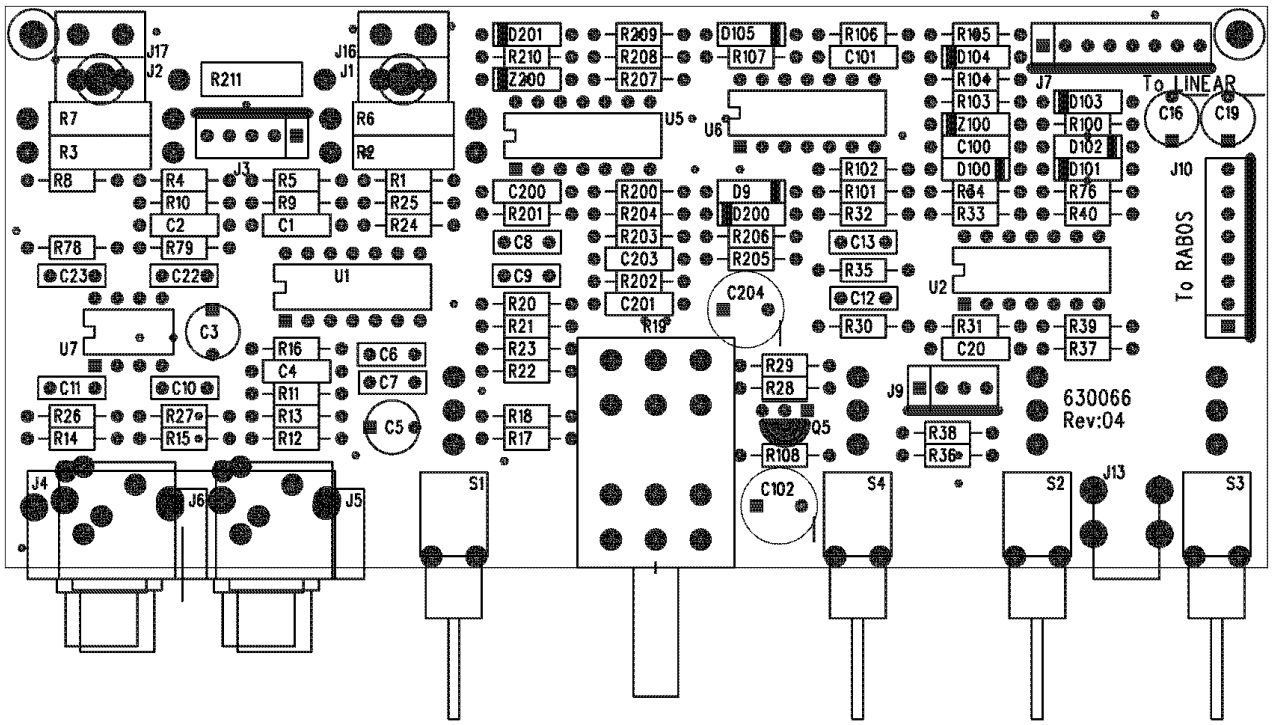


620012 Rev. B
Silkscreen

00383-2

EMI FILTER BOARD

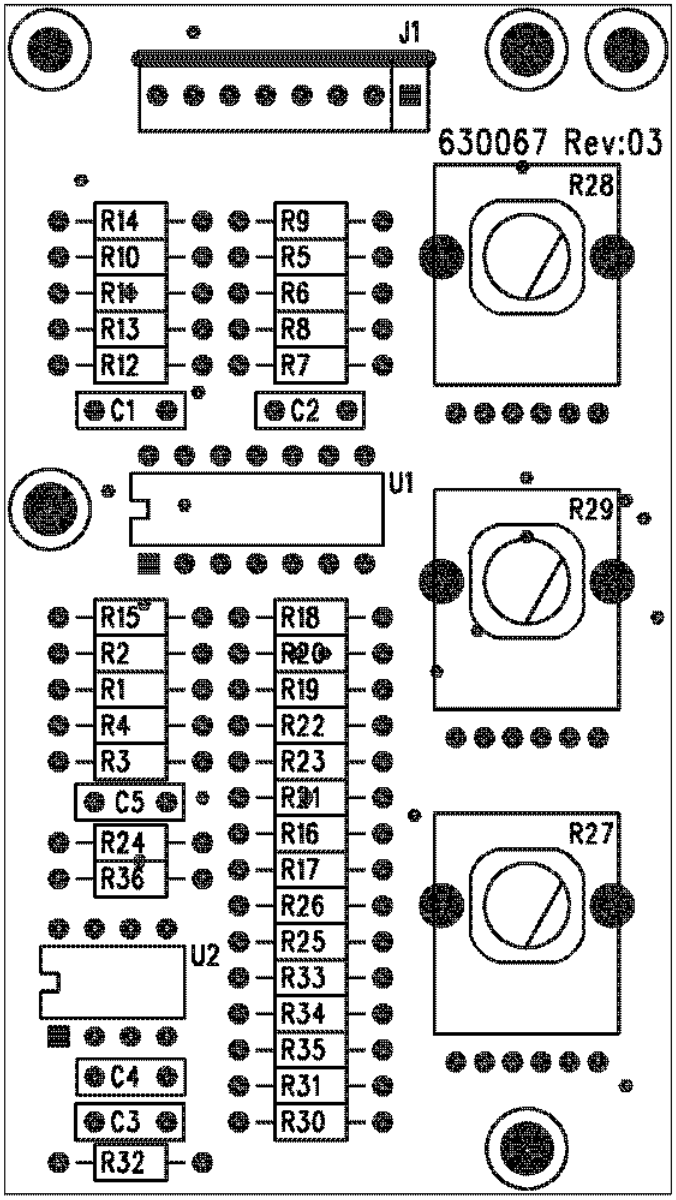
IL120s FEATURE BOARD



00383-3

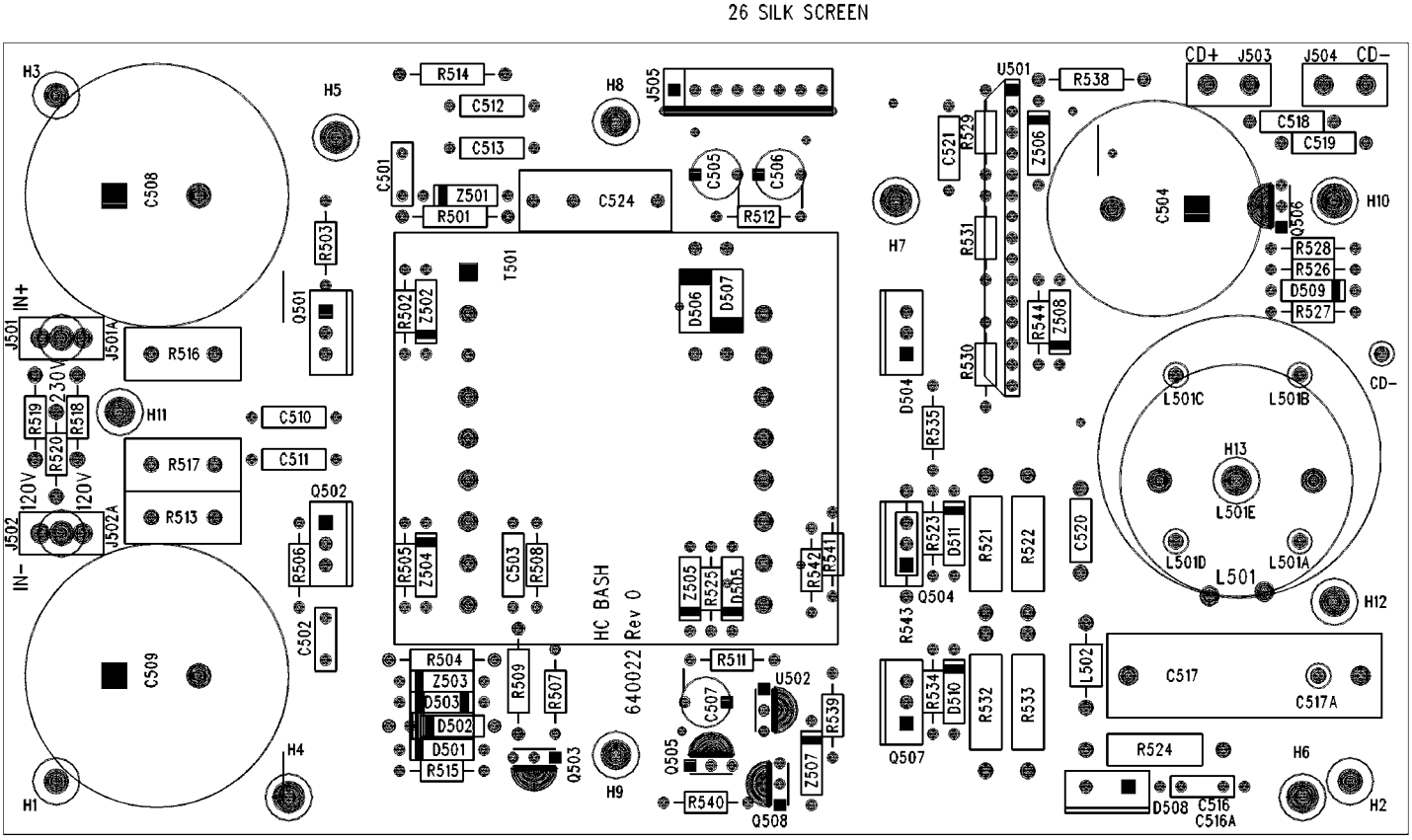
IL Feature Board

IL RABOS BOARD



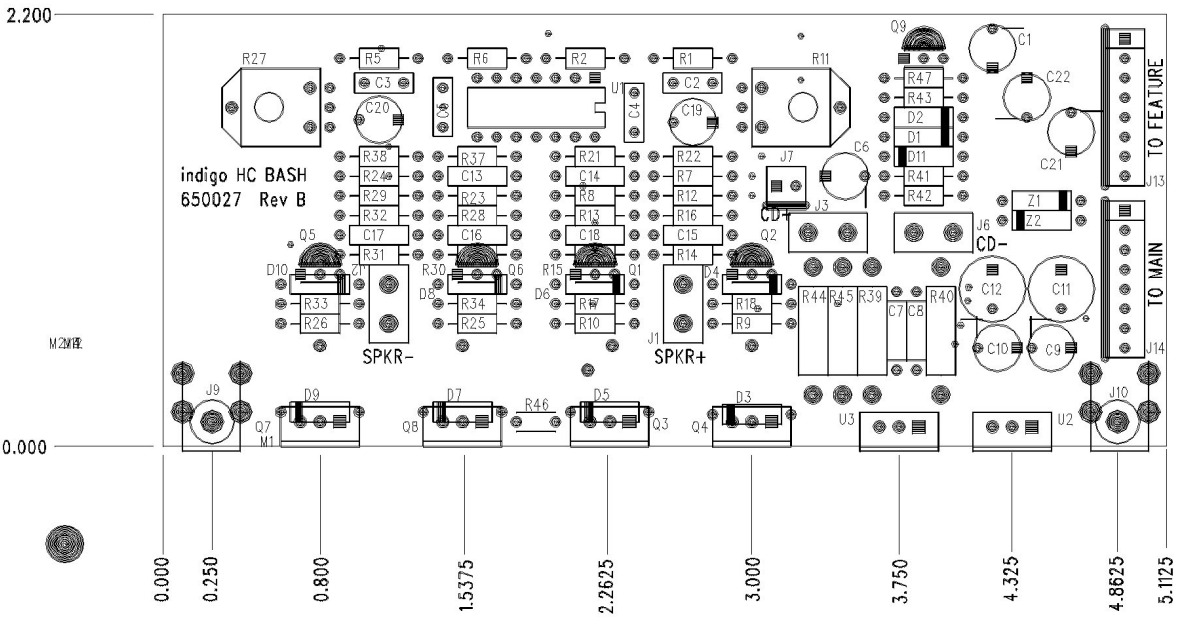
IL Rabos Board

500W HC BASH POWER SUPPLY



500W HC BASH POWER SUPPLY (120V/230V Selectable)

IL 500W LINEAR BOARD



IL 500W Linear Board

IL120s ELECTRONIC PARTS LIST

Part No.	Reference Designator	Qty	Description
PCB, FEATURE			
	SEMICONDUCTORS		
QM0035	Q5	1	JFET, N-CH J111 TO92 TR
UA0003	U5,U6	2	OPAMP, QUAD 14PIN DIL LM324N
UA0009	U1,U2	2	OPAMP, QUAD 14P DIL TL074/084
UA0010	U7	1	OPAMP, DUAL 8PIN DIL TL082
DS0001	D9,D100,D101,D102,D103, D104,D105, D200,D201	9	RECT, 100mA 75V SIGNAL 1N4148T
DZ0002	Z200	1	ZENER, 500mW 12V 5% 1N5242B
DZ0014	Z100	1	ZENER, 500MW 14V 5% 1N5244B
	CAPACITORS		
CC0020	C200	1	CAP, CA 470PF 100V 5%
CC0025	C203	1	CAP, CA 1000PF 100V 10%
CC0072	C1,C2,C4,C20,C100,C101	6	CAP, CA 100PF 100V 10%
CC0082	C201	1	CAP, CA .1UF 50V 20%
CE0013	C204	1	CAP, E 47UF 50V 20% 5MMLS
CE0101	C16,C19	2	CAP, E 4.7UF 50V 85D 5X11 5MML
CE0103	C102	1	CAP, E 100UF 35V 85DEG 5MMLS
CE0106	C5	1	CAP, E 22UF 35V BP 8X11 5MMLS
CE0108	C3	1	CAP, E 4.7UF 16V BIPOLAR 5X11
CF0045	C10,C11,C22,C23	4	CAP, F .1UF 63DC 5% 5MMLS
CF0078	C12,C13	2	CAP, F .47UF 63V 10% 5MMLS
CF0125	C6,C8	2	CAP, F .068UF 100V 5% 5MMLS
CF0128	C7,C9	2	CAP, F .033UF 100V 5% 5MMLS
	RESISTORS		
RC0001	R211	1	RES, CF 1K0 1/2W 5%
RC0192	R3,R7	2	RES, CF 2K0 1/2W 5%
RC0273	R20,R24,R33	3	RES, ZERO OHM 1/4W
RC0290	R206	1	RES, CF 9M1 1/4W 5%
RM0002	R12,R13,R37,R38,R39,R100,R101,R102, R208,R209	10	RES, MF 10K0 1/4W 1%
RM0003	R16,R200,R210	3	RES, MF 15K0 1/4W 1%
RM0011	R1,R4,R5,R8,R103,R105,R201	7	RES, MF 100K 1/4W 1%
RM0012	R14,R15,R30	3	RES, MF 100R 1/4W 1%
RM0016	R104	1	RES, MF 13K0 1/4W 1%
RM0020	R28,R29	2	RES, MF 1K40 1/4W 1%
RM0024	R207	1	RES, MF 2K21 1/4W 1%
RM0031	R204	1	RES, MF 3K32 1/4W 1%
RM0075	R205	1	RES, MF 475R 1/4W 1%
RM0084	R76	1	RES, MF 1K65 1/4W 1%
RM0085	R107	1	RES, MF 2K00 1/4W 1%
RM0106	R26,R78	2	RES, MF 14K0 1/4W 1%
RM0120	R9,R10	2	RES, MF 30K1 1/4W 1%
RM0124	R11	1	RES, MF 39K2 1/4W 1%
RM0136	R202	1	RES, MF 150K 1/4W 1%
RM0156	R108	1	RES, MF 392K 1/4W 1%

IL120s ELECTRONIC PARTS LIST (Cont.)

Part No.	Reference Designator	Qty	Description
RM0158	R27,R79	2	RES, MF 28K0 1/4W 1%
RM0171	R31,R203	2	RES, MF 475K 1/4W 1%
RM0188	R106	1	RES, MF 499R 1/4W 1%
RM0205	R17,R18,R22,R23,R32	5	RES, MF 22K6 1/4W 1%
RM0372	R35	1	RES, MF 5K76 1/4W 1%
RM0404	R2,R6	2	RES, MF 54R9 1/4W 1%
RP0105	R19	1	POT, B50K QUAD
	MISCELLANEOUS		
JC0052	J4	1	CNCTR, RCA QUAD JACK
JH0006	J9	1	CNCTR, HEADER 4PIN .100CTR
JH0008	J3	1	CNCTR, HEADER 5PIN .100CTR
JH0074	J7,J10	2	CNCTR, HEADER 8PIN LOCKING .1C
SR0007	S1,S2,S3,S4	4	SWITCH, SPDT TOGGLE C/W CAP PC
PCB, RABOS			
	SEMICONDUCTORS		
UA0009	U1	1	OPAMP, QUAD 14P DIL TL074/084
UA0010	U2	1	OPAMP, DUAL 8PIN DIL TL082
	RESISTORS		
RM0001	R24,R25,R33	3	RES, MF 1K00 1/4W 1%
RM0002	R1,R2,R4,R9,R14,R15,R21,R23	8	RES, MF 10K0 1/4W 1%
RM0003	R8,R13	2	RES, MF 15K0 1/4W 1%
RM0012	R3	1	RES, MF 100R 1/4W 1%
RM0024	R22	1	RES, MF 2K21 1/4W 1%
RM0042	R26	1	RES, MF 681R 1/4W 1%
RM0047	R31	1	RES, MF 909R 1/4W 1%
RM0080	R5,R10	2	RES, MF 825R 1/4W 1%
RM0106	R35	1	RES, MF 14K0 1/4W 1%
RM0170	R32	1	RES, MF 59K 1/4W 1%
RM0185	R34	1	RES, MF 5K90 1/4W 1%
RM0260	R36	1	RES, MF 1M0 1/4W 1%
RM0271	R19	1	RES, MF 110K 1/4W 1%
RM0281	R7,R12	2	RES, MF 6K04 1/4W 1%
RM0315	R17	1	RES, MF 2K67 1/4W 1%
RM0369	R6,R11	2	RES, MF 340R 1/4W 1%
RM0370	R18	1	RES, MF 9K31 1/4W 1%
RM0377	R16	1	RES, MF 3K57 1/4W 1%
RM0378	R20	1	RES, MF 549R 1/4W 1%
RM0398	R30	1	RES, MF 162R 1/4W 1%
RP0087	R27,R29	2	POT, A10K DUAL 12MM HOR 5%
RP0088	R28	1	POT, C10K DUAL 12MM HOR 5%
	CAPACITORS		
CF0045	C1,C2,C5	3	CAP, F .1UF 63DC 5% 5MMLS
CF0125	C3	1	CAP, F .068UF 100V 5% 5MMLS
CF0135	C4	1	CAP, F .18UF 50V 5% 5MMLS

IL120s ELECTRONIC PARTS LIST (Cont.)

Part No.	Reference Designator	Qty	Description
	MISCELLANEOUS		
JH0074	J1	1	CNCTR, HEADER 8PIN LOCKING .1C
PCB, LINEAR			
	SEMICONDUCTORS		
DS0001	D1,D2,D3,D4,D5,D6,D7,D8,D9,D10,D11	11	RECT, 100mA 75V SIGNAL 1N4148T
QB0017	Q2,Q6	2	TRANS, NPN 150V 0.6A 2N5551TR
QB0018	Q1,Q5	2	TRANS, PNP 150V 0.6A 2N5401TR
QM0015	Q3,Q7	2	MOSFET, IRF640 TO220AB
QM0034	Q4,Q8	2	MOSFET, IRF9540 TO220AB
QM0054	Q9	1	JFET, N-CH J113 TO92
UA0009	U1	1	OPAMP, QUAD 14P DIL TL074/084
UV0015	U2	1	VREG, +18V 500MA LM7818CT
UV0016	U3	1	VREG, -18V 500MA LM7918CT
DZ0011	Z1,Z2	2	ZENER, 500MW 3V 5% 1N5225B
	RESISTORS		
RM0001	R12,R13,R14,R15,R28,R29,R30,R31	8	RES, MF 1K00 1/4W 1%
RM0002	R1,R2,R5,R6	4	RES, MF 10K0 1/4W 1%
RM0021	R7,R8,R23,R24	4	RES, MF 1K82 1/4W 1%
RM0024	R17,R18,R33,R34	4	RES, MF 2K21 1/4W 1%
RM0029	R9,R10,R25,R26	4	RES, MF 3K01 1/4W 1%
RM0035	R41,R42	2	RES, MF 4K75 1/4W 1%
RM0039	R47	1	RES, MF 5K11 1/4W 1%
RM0091	R22,R38	2	RES, MF 3K65 1/4W 1%
RM0170	R21,R37	2	RES, MF 59K 1/4W 1%
RM0180	R16,R32	2	RES, MF 4K99 1/4W 1%
KS0019	R46	1	THERMISTOR, PTH9L04BD22TS2F510
RP0059	R11,R27	2	POT, 2K 8MM TOP ADJ/COVER
RW0022	R44,R45	2	RES, WW 0R1 2W 5%
RX0055	R39,R40	2	RES, MO 470R 2W 5%
	CAPACITORS		
CC0025	C15,C16,C17,C18	4	CAP, CA 1000PF 100V 10%
CC0080	C13,C14	2	CAP, CA 220P 100V 10%
CC0097	C4,C5	2	CAP, C 10P 50V 10%
CE0003	C6	1	CAP, E 2.2UF 50V 20% 105C
CE0013	C9,C10,C21,C22	4	CAP, E 47UF 50V 20% 5MMLS
CE0085	C19,C20	2	CAP, E 22UF 16V BP 6X11 5MMLS
CE0103	C11,C12	2	CAP, E 100UF 35V 85DEG 5MMLS
CE0116	C1	1	CAP, E 2.2UF 50V BP 6X11 5MMLS
CF0125	C3	1	CAP, F .068UF 100V 5% 5MMLS
CF0128	C2	1	CAP, F .033UF 100V 5% 5MMLS
CC0082	C7,C8	2	CAP, CA .1UF 50V 20%

IL120s ELECTRONIC PARTS LIST (Cont.)

Part No.	Reference Designator	Qty	Description
	MISCELLANEOUS		
JH0016	J7	1	CNCTR, HEADER 2PIN .100CTR
JH0074	J13,J14	2	CNCTR, HEADER 8PIN LOCKING .1C
MM0025	J9,J10	2	MISC, PC MT SCREW TERM 6-32
MT0003	J1	1	TERM, FASTON MALE PCMT 250X032
MT0023	J3,J6	2	TERM, FASTON MALE PCMT 187X032
MT0036	J2	1	TERM, FASTON MALE PCMT 205X032
TS0016		6	TUBING, #5 BLACK CUT TO .3 USED ON THE FETS
PCB, POWER SUPPLY			
	SEMICONDUCTORS		
DR0077	D506,D507	2	RECT, 1A 100V FAST REC 1N4934
DS0001	D509,D510,D511	3	RECT, 100mA 75V SIGNAL 1N4148T
DS0002	D501,D502,D505	3	RECT, 100MA 200V SIGNAL 1N3070
DD0003	D503	1	RECT, 1A2 60V DIAC
DR0076	D504	1	RECT, 16A 400V ULTRA MUR1640CT
DR0087	D508	1	RECT, 15A 200V ULTRA MUR1540
QB0002	Q505	1	TRANS, NPN 40V .6A TO92 2N4401
QB0014	Q503	1	TRANS, PNP TO92 MPSA92TR
QB0017	Q506	1	TRANS, NPN 150V 0.6A 2N5551TR
QM0015	Q504,Q507	2	MOSFET, IRF640 TO220AB
QM0055	Q501,Q502	2	MOSFET, IRF740 TO220AB IR ONLY
HC1011	U501	1	HYBRID, THK FILM HC BUCK CNTR
DZ0002	Z501,Z503	2	ZENER, 500mW 12V 5% 1N5242B
DZ0004	Z505	1	ZENER, 500mW 18V 5% 1N5248B
DZ0021	Z502,Z504	2	ZENER, 500MW 15V 5% 1N5245B
DZ0038	Z506	1	ZENER, 500MW 33V 5% 1N5257B
	CAPACITORS		
CC0040	C503	1	CAP, CA 4700PF 100V 10%
CC0059	C518,C519	1	CAP, CA .1UF 100V 20%
CC0082	C521	1	CAP, CA .1UF 50V 20%
CE0013	C505,C506	2	CAP, E 47UF 50V 20% 5MMLS
CE0098	C507	1	CAP, E 22UF 50V 20% 5X11 5MMLS
CF0019	C501,C502	2	CAP, F 4700PF 100V 5% 5MMLS
CC0021	C516	1	CAP, C 470PF 1KV 10% BULK
CC0130	C524	1	CAP, CY1 4700PF 250V 20% .4LS
CE0040	C504	1	CAP, E 680UF 200V 25X35 85DEG
CE0136	C508,C509	2	CAP, E 820UF 200V 20% 30X35
CF0050	C510,C511,C512,C513,C520	5	CAP, F .1UF 250V 10% 10MMLS
CF0146	C517	1	CAP, F 6.8UF 250V 10% 27MMLS
	RESISTORS		
RC0082	R509	1	RES, CF 100K 1/2W 5%
RC0136	R515	1	RES, CF 160K 1/4W 5%
RC0273	R518,R519	2	RES, ZERO OHM 1/4W
RM0001	R507	1	RES, MF 1K00 1/4W 1%

IL120s ELECTRONIC PARTS LIST (Cont.)

Part No.	Reference Designator	Qty	Description
RM0002	R525	1	RES, MF 10K0 1/4W 1%
RM0050	R531	1	RES, MF 90K9 1/4W 1%
RM0070	R528	1	RES, MF 301R 1/4W 1%
RM0191	R529	1	RES, MF 20K5 1/4W 1%
RM0198	R508	1	RES, MF 205K 1/4W 1%
RM0260	R526	1	RES, MF 1M0 1/4W 1%
RM0337	R530	1	RES, MF 19K6 1/4W 1%
RM0339	R511,R512,R523,R534,R535	5	RES, MF 10R 0.6W 1% FLAMEPROOF
RM0340	R503,R506	2	RES, MF 22R 0.6W 1% FLAMEPROOF
RM0397	R502,R505	2	RES, MF 422R 1/4W 1%
RM0399	R527	1	RES, MF 3K48 1/4W 1%
RW0022	R521,R522,R532,R533	4	RES, WW 0R1 2W 5%
RX0046	R514	1	RES, MO 47K 1W 5%
RX0048	R501,R504	2	RES, MO 330R 1W 5%
RX0072	R524	1	RES, MO 100R 1W 5%
KS0021	R513	1	SURGISTOR, 4R 8A 70J SL154R008
RX0106	R538	1	RES, MO 15K 2W 5%
	MISCELLANEOUS		
500111	T501	1	XFMR, POWER 500W ETD44 160V
540131	L501	1	IND, 25UH UPRIGHT AIR COIL
BF0007	L502	1	BEAD, FERRITE
TS0016		6	TUBING, #5 BLACK CUT TO .3 USED ON D4,D8,Q1,Q2,Q4,Q7
JH0074	J505	1	CNCTR, HEADER 8PIN LOCKING .1C
MT0023	J501,J502,J503,J504	4	TERM, FASTON MALE PCMT 187X032
PCB, VOLUME-LED RIGHT			
	SEMICONDUCTORS		
DL0014	D1,D2	2	LED, 3MM BICOLOR RED/GR
	RESISTORS		
RP0097	R1	1	POT, A10K SINGLE/BRKT D SHAFT
	MISCELLANEOUS		
JH0006	J1	1	CNCTR, HEADER 4PIN .100CTR
HS0078		3	SCREW, #4-24X1/2 HL PP BLK USED ON 610044
INTERLUDE CUP R		1	INTERLUDE VOL-LED MTG PLT RIGH
JC0169A		1	CNCTR, FEM-MA HARNESS 4PSH 15 USED ON LOCATION J1
MM0066		1	MISC, VOL GASKET R INTERLUDE GAS-KET RIGHT
RP0103		1	POT, KNOB INTERLUDE LEVEL R

IL120s ELECTRONIC PARTS LIST (Cont.)

Part No.	Reference Designator	Qty	Description
PCB, AC FILTER/EMI			
	SEMICONDUCTORS		
DB0009	D5	1	RECT, 6A 400V BRIDGE
	RESISTORS		
RC0004	R23	1	RES, CF 1M0 1/4W 5%
	CAPACITORS		
CC0130	C3	1	CAP, CY1 4700PF 250V 20% .4LS
CF0050	C4,C5	2	CAP, F .1UF 250V 10% 10MMLS
CF0057	C2	1	CAP, FX .22UF 250V 10%
	MISCELLANEOUS		
KV0001	Z4	1	VARISTOR, 275V 100J .6W
480022	J1	1	SUB, #18B 6 187X032/1/4STRP
480028	J2	1	SUB, #18R 6 187X032/1/4STRP
540124	L1	1	IND, CM CHOKE YT7271
MT0023	J5,J6	2	TERM, FASTON MALE PCMT 187X032
MISCELLANEOUS			
480033		3	SUB, #18R 4 187X032/187X032 IEC LIVE TO FUSE; FUSE TO SWITCH; SWITCH TO EMI BOARD
480048		1	SUB, #18B 9 187X032/187X032 CD- TO LINEAR BOARD
480073		1	SUB, #18R 9 187X032/187X032 CD+ TO LINEAR BOARD
480083		2	SUB, #18B 4 187X032/187X032 IEC NEUTRAL TO SWITCH; SWITCH TO EMI BOARD
480091		1	SUB, #18R 7 187X032/187X032 DC+ TO POWER SUPPLY BOARD
480119		1	SUB, #16B 20 205X032/205X032 XOVER - WIRE
480120		1	SUB, #16R 20 250X032/250X032 XOVER + WIRE
480121		1	SUB, #16B 30 205X032/205X032 SPEAKER - WIRE
480122		1	SUB, #16R 30 250X032/250X032 SPEAKER + WIRE
480130		1	SUB, #18B 7 187X032/187X032 DC- TO POWER SUPPLY BOARD
810056		6	MET, HTSNK CLIP .9X.5X.2 FET Q3,Q4,Q7,Q8,U2,U3 ON THE LINEAR BOARD

IL120s ELECTRONIC PARTS LIST (Cont.)

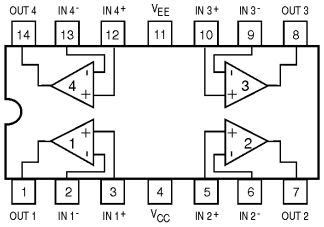
Part No.	Reference Designator	Qty	Description
810066		6	MET, HTSNK CLIP HPS SERIES USED ON D4,D8,Q1,Q2,Q4,Q7
810088		1	MET, HTSNK 1X2 BRIDGE USED WITH THE BRIDGE
810105		1	MET, HTSNK PRI 3FET IL120
810106		1	MET, HTSNK SEC 3FET IL120
810107		1	MET, HTSNK SHIELD IL60/120
810108		1	MET, HTSNK PWR BRCKET IL60/120
930054		1	CUP, PCBA BUCKET C/W GASKET FEATURE BOARD BOX
930055		1	CUP, AMP BUCKET AC IN W/GASKET AC BOX
FH0012		1	FUSE, HOLDER PANEL MT SEALED ON THE PANEL
FS0026		1	FUSE, 4A 250V 1.25X.25 GLASS
HN0006		1	NUT, HEX KEP #6-32 ZNP USED WITH THE BRIDGE
HN0015		4	NUT, HEX KEP #8-32 ZNP MOUNT BRACKET TO PANEL
HS0004		4	SCREW, #6-32X1/4 PAN PHIL ZNP 2PC USED WITH MM0025; 1PC USED WITH MZ0040; 1PC USED WITH MZ0045
HS0057		4	SCREW, #8-32X1/2 PAN PHIL BLK MOUNT BRACKET TO PANEL
HS0060		3	SCREW, #6-32X3/8 PAN PHIL BLK MOUNT SHIELD TO BRACKET
HS0062		6	SCREW, #6-1/2 TYPE B PP BLK USED WITH THE FETS ON THE LINEAR BOARD
HS0065		3	SCREW, #6-32X1/4 PAN PHIL BLK 1PC USED WITH MM0025 ON FEATURE BOARD; 1PC USED WITH MZ0040; 1PC USED WITH MZ0045
HS0066		1	SCREW, #6-32X1/2 PAN PHIL BLK USED WITH THE BRIDGE
HS0067		12	SCREW, #6-3/8 TYPE A PP BLK 6PER USED ON MZ0030; 3PER USED ON MZ0040; 3PER USED ON MM0025; 8PER USED ON 930054; 6PER USED ON 930055
HS0078		6	SCREW, #4-24X1/2 HL PP BLK 2PER USED ON BINDING POSTS; 2PER USED ON RCA'S; 2PER USED ON CUP
HS0089		4	SCREW, #4-40X1/2 PAN PHIL ZNP TO CONNECT THE HEATSINKS
HS0092		14	SCREW, #6-19X3/8 HL PP BLK 8PER USED ON 930054; 6PER USED ON 930055;
IL120 PANEL		1	INTERLUDE IL120 PANEL COMPLETE

IL120s ELECTRONIC PARTS LIST (Cont.)

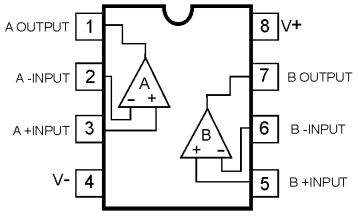
Part No.	Reference Designator	Qty	Description
JC0071		1	CNCTR, FEM-FEM HARNESS 8PIN 9 ABOS BOARD TO FEATURE BOARD
JC0104		1	CNCTR, 2PIN BP GOLD C/W TERM ON THE PANEL
JC0129		1	CNCTR, AC IEC SOCKET .250 2PIN ON THE PANEL
JC0163A		1	CNCTR, FEM-MAL HARNESS 8P 10 J7 ON FEATURE TO J13 ON LINEAR BOARD
JC0163B		1	CNCTR, FEM-FEM HARNESS 8P 10 J7 ON FEATURE TO J13 ON LINEAR BOARD
JC0165		1	CNCTR, FEM-FEM HARNESS 8P 12 POWER SUPPLY BOARD TO LINEAR BOARD
JC0169C		1	CNCTR, FEM-FEM HARNESS 4PS 28 USED ON J9
MM0069		3	MISC, RUBBER GROMMET IL50/100
MM0076		2	MISC, PANEL GASKET IL60/IL120 ON THE PANEL
MS0005		2	SILPAD, .009 .3C/W TO3P U2,U3 ON THE LINEAR BOARD
MS0017		6	MISC, CERAMIC PLATE TO-220 Q3,Q4,Q7,Q8 ON THE LINEAR BOARD; Q4,Q7 ON POWER SUPPLY BOARD
MZ0003		1	STANDOFF, 6-32 3/8 ROUND AL USED ON THE AC FILTER BOARD
MZ0030		2	STANDOFF, 3/8 NYLON
MZ0040		2	STANDOFF, 30MM NYLON USED ON THE RABOS BOARD
MZ0045		1	STANDOFF, 6-32 1.187 HEX AL USED ON RABOS BOARD
SR0032		1	SWITCH, ROCKER TV5 ON THE PANEL

INTEGRATED CIRCUIT DIAGRAMS

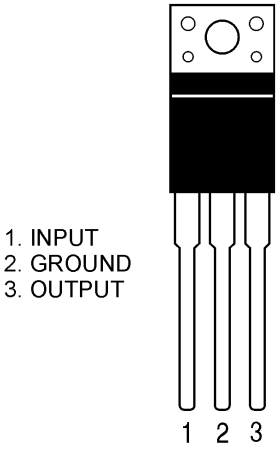
QUAD OP-AMP, LM324, TL074/084
U1, U2, U5, U6



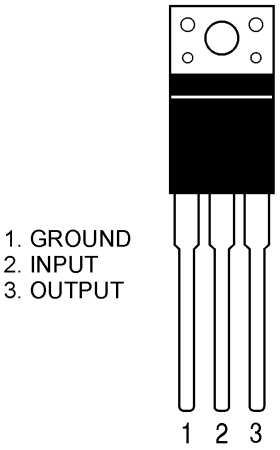
OPAMP, DUAL 8PIN DIL TL082
U2, U7



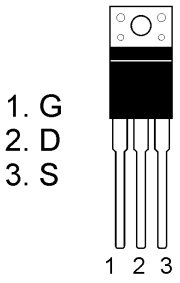
+15V TO220 LM7818CT
REGULATOR
U2



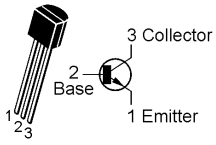
-15V TO220 LM7918CT
REGULATOR
U3



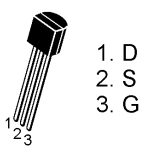
MOSFET, IRF640/ 740/9540,TO220AB
Q3, Q4, Q7, Q8, Q501, Q502, Q504, Q507



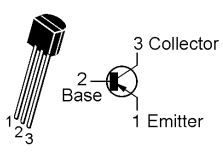
TRANS, NPN 150V 0.6A 2N5551,
Q2, Q6, Q505, Q506
2N4401,



JFET, Q5,Q9
J111, J113



TRANS, PNP 150V 0.6A 2N5401,
MPSA92
Q1, Q5, Q503



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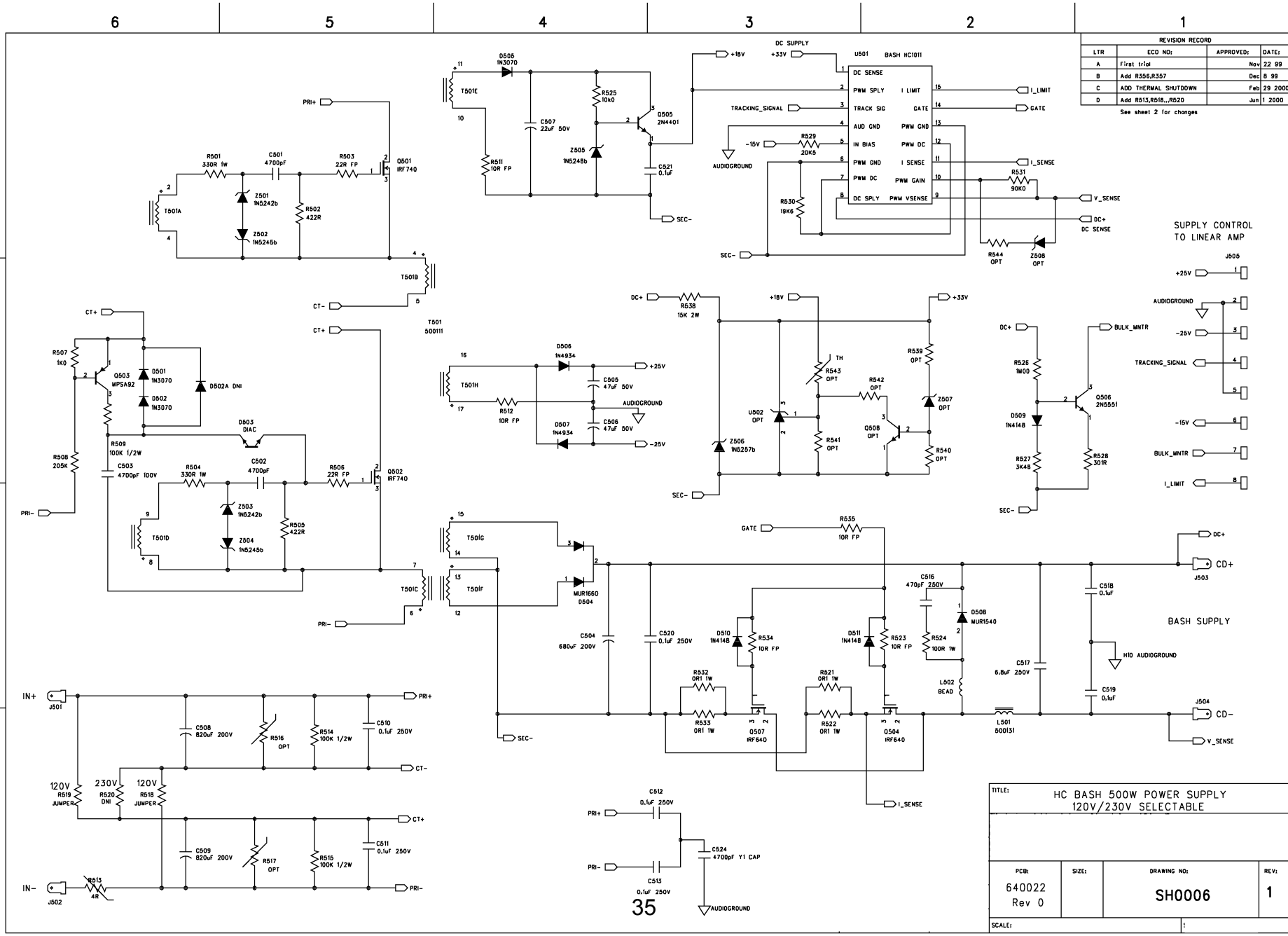
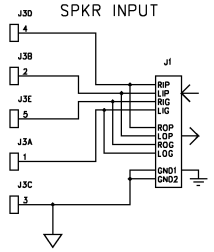
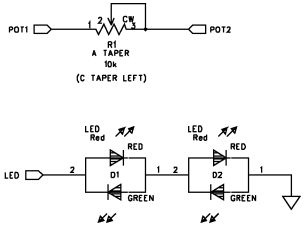
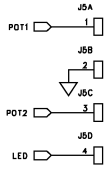

6
5
4
3
2
1
D
C
B
A
REVISION RECORD
LTR | ECO NO: | APPROVED: | DATE:
A | First trial | Nov 22 99
B | Add R356,R357 | Dec 8 99
C | ADD THERMAL SHUTDOWN | Feb 29 2000
D | Add R513,R518,,R520 | Jun 1 2000
See sheet 2 for changes
DC SUPPLY
U501 BASH HC1011
DC SENSE
PWM SPLY
TRACK SIG
AUD GND
IN BIAS
PWM GND
PWM DC
DC SPLY
I LIMIT
GATE
PWM GND
PWM DC
I SENSE
PWM GAIN
PWM VSENSE
+18V
+33V
TRACKING_SIGNAL
-15V
AUDIOGROUND
SEC-
I_LIMIT
GATE
I_SENSE
V_SENSE
DC+
DC SENSE
SUPPLY CONTROL TO LINEAR AMP
J505
+25V
AUDIOGROUND
-25V
TRACKING_SIGNAL
-15V
BULK_MNTR
I_LIMIT
T501
500111
PRI+
PRI-
CT+
CT-
T501A
T501B
T501C
T501D
T501E
T501F
T501G
T501H
R501 330R 1W
C501 4700pF
R503 22R FP
Q501 IRF740
Z501 1N5242b
Z502 1N5245b
R502 422R
R507 1K0
Q503 MPSA92
D501 1N3070
D502 1N3070
D502A DNI
D503 DIAC
R509 100K 1/2W
R508 205K
C503 4700pF 100V
R504 330R 1W
C502 4700pF
R506 22R FP
Q502 IRF740
Z503 1N5242b
Z504 1N5245b
R505 422R
D505 1N3070
R525 10K0
Q505 2N4401
C507 22uF 50V
Z505 1N5248b
R511 10R FP
C521 0.1uF
D506 1N4934
D507 1N4934
C505 47uF 50V
C506 47uF 50V
R512 10R FP
AUDIOGROUND
R538 15K 2W
TH R543 OPT
R542 OPT
R539 OPT
Z507 OPT
U502 OPT
Z506 1N5257b
R541 OPT
Q508 OPT
R540 OPT
R529 20K5
R530 19K6
R531 90K0
R544 OPT
Z508 OPT
R526 1M00
Q506 2N5551
D509 1N4148
R527 3K48
R528 301R
R535 10R FP
C504 680uF 200V
C520 0.1uF 250V
D510 1N4148
R534 10R FP
D511 1N4148
R523 10R FP
C516 470pF 250V
D508 MUR1540
R524 100R 1W
L502 BEAD
C517 6.8uF 250V
C518 0.1uF
C519 0.1uF
H10 AUDIOGROUND
J503 CD+
J504 CD-
V_SENSE
BASH SUPPLY
D504 MUR1660
R532 OR1 1W
R533 OR1 1W
Q507 IRF640
R521 OR1 1W
R522 OR1 1W
Q504 IRF640
L501 500131
J501 IN+
IN-
J502
C508 820uF 200V
R516 OPT
R514 100K 1/2W
C510 0.1uF 250V
120V R519 JUMPER
230V R520 DNI
120V R518 JUMPER
C509 820uF 200V
R517 OPT
R515 100K 1/2W
C511 0.1uF 250V
R513 4R
C512 0.1uF 250V
C524 4700pF Y1 CAP
C513 0.1uF 250V
TITLE: HC BASH 500W POWER SUPPLY 120V/230V SELECTABLE
PCB: 640022 Rev 0
SIZE:
DRAWING NO: SH0006
REV: 1
SCALE:

REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:

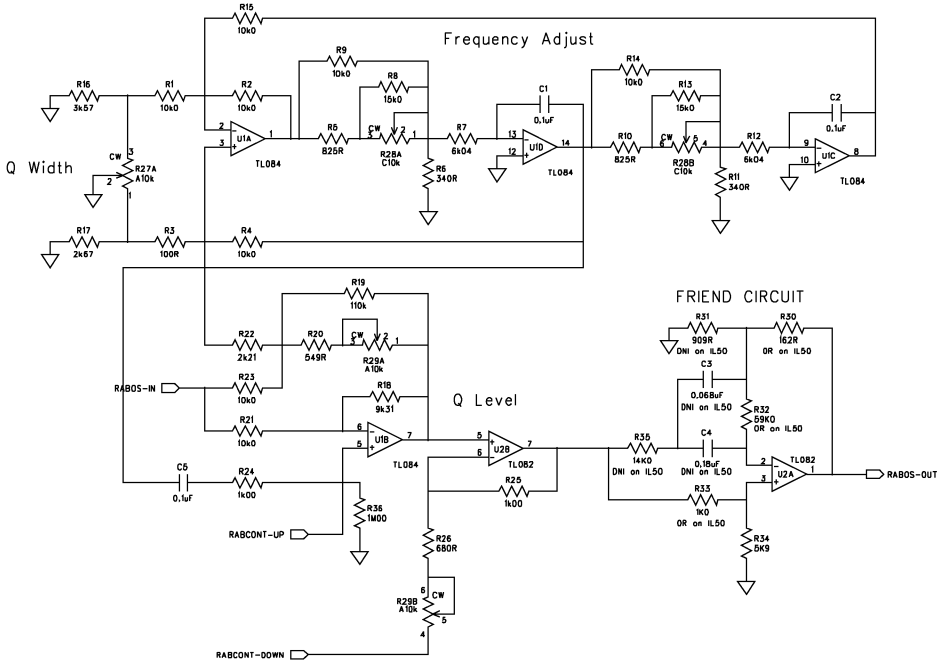


HI-LEVEL BOARD



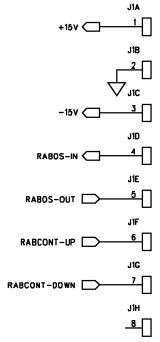


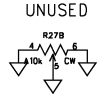
INTERLUDE VOLUME BOARD (LEFT OR RIGHT)

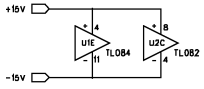


RABOS CONTROL

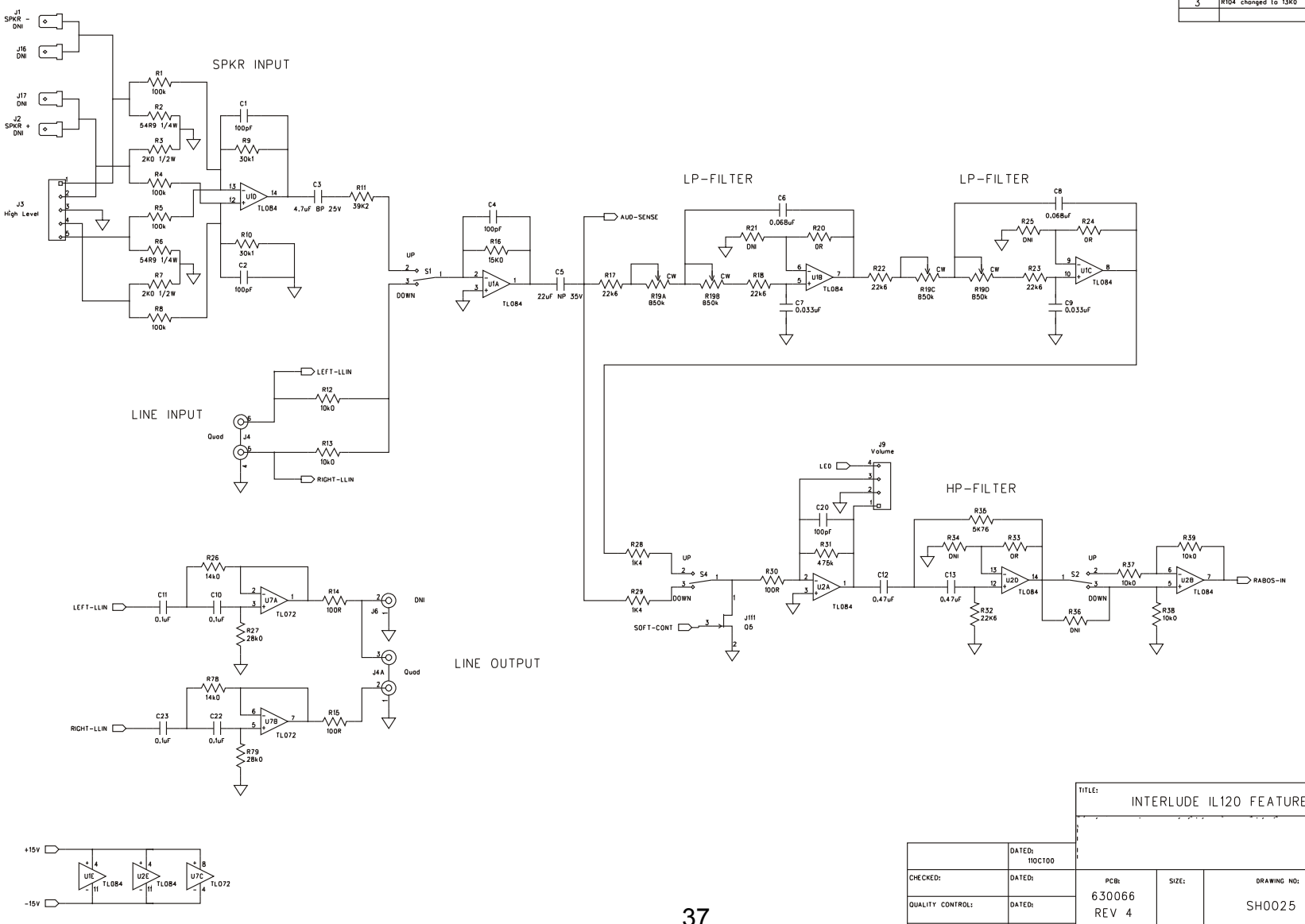
INTERLUDE IL120 RABOS BOARD



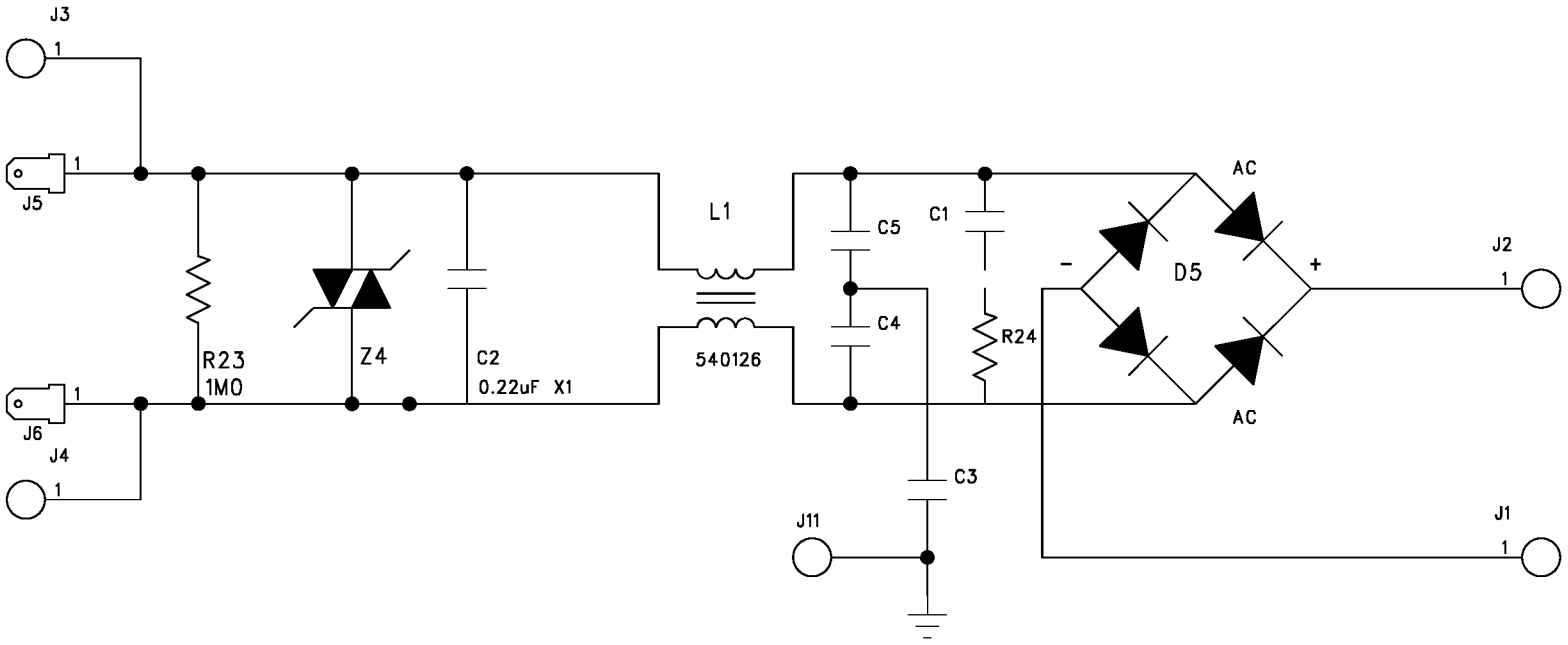




REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:
2	R2=R6=54R9 1/4W		
	R3=R7=2K0 1/2W		21AUG00
3	R104 changed to 13K0		11SEP00

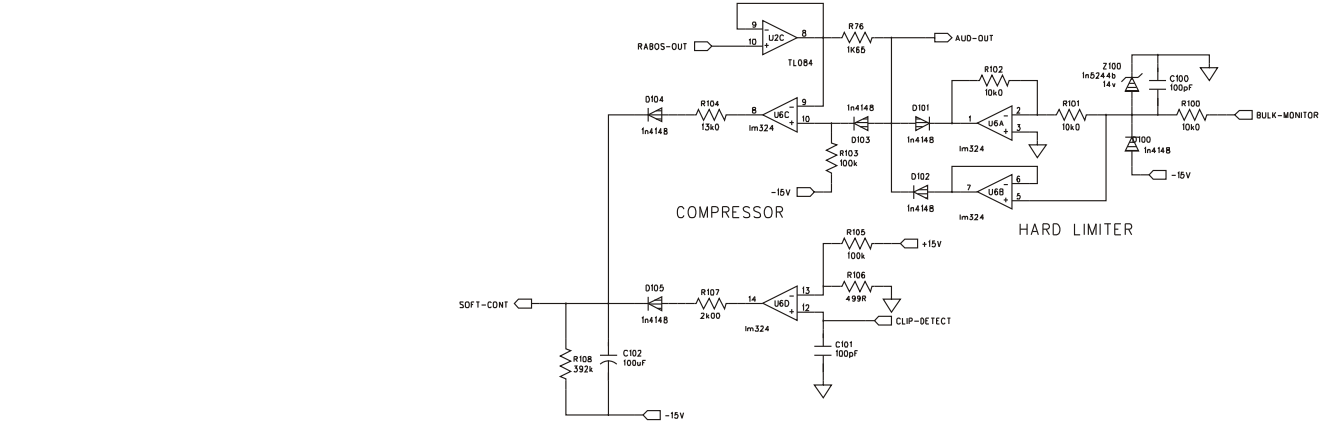


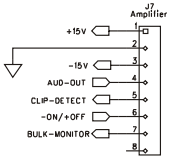
	DATED: 11OCT00	TITLE: INTERLUDE IL120 FEATURE BOARD		
CHECKED:	DATED:	PCB: 630066 REV 4	SIZE:	DRAWING NO: SH0025
QUALITY CONTROL:	DATED:			REV: 4
RELEASED:	DATED:	SCALE:		SHEET: 1 OF 3

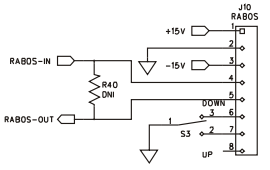


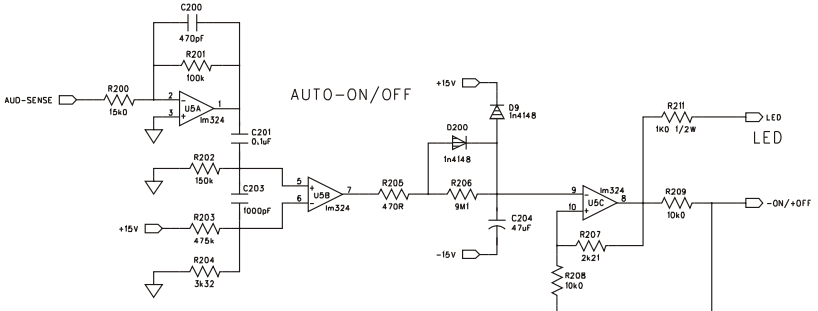
COMPANY: HC BASH 500 Watt EMI			
CODE: 620012 Rev B	SIZE:	DRAWING NO: SH004802	REV: 2

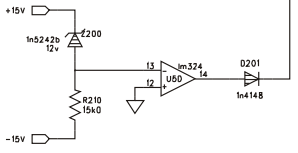
REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:

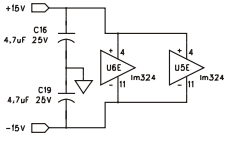




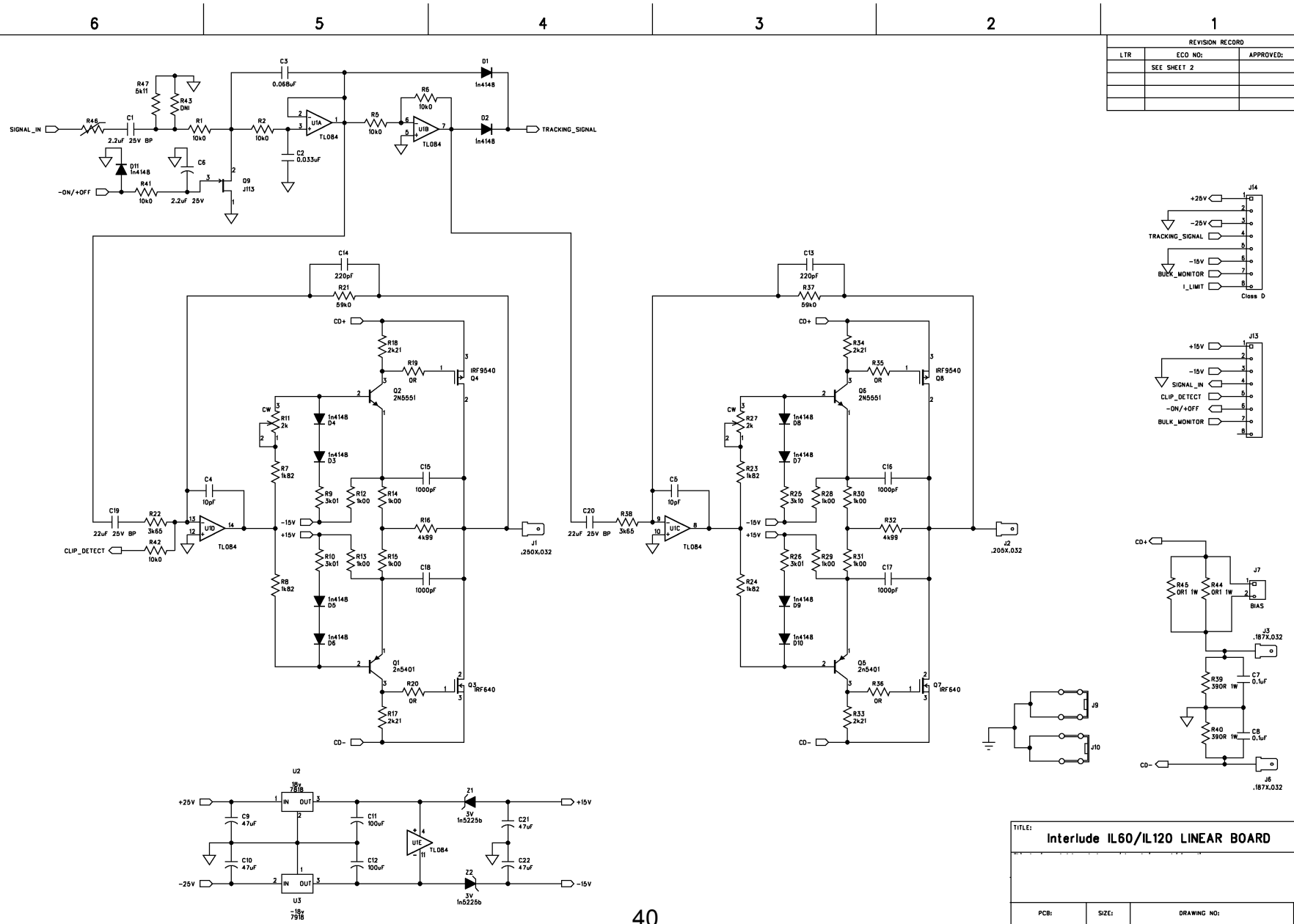








CHECKED:	DATED: 110CT00	TITLE: INTERLUDE IL120 FEATURE BOARD			
QUALITY CONTROL:	DATED:	PCB: 630066 REV 4	SIZE:	DRAWING NO: SH0025	REV: 4
RELEASED:	DATED:	SCALE:		SHEET: 2 OF 3	


REVISION RECORD
LTR | ECO NO: | APPROVED: | DATE:
SEE SHEET 2
SIGNAL_IN
TRACKING_SIGNAL
-ON/+OFF
TL084
IRF9540
IRF640
2N5551
2N5401
1n4148
J1 .250X.032
J2 .205X.032
J3 .187X.032
J6 .187X.032
Class D
BIAS
CLIP_DETECT
BULK_MONITOR
I_LIMIT
TITLE: Interlude IL60/IL120 LINEAR BOARD
PCB: 650027 Rev B
SIZE:
DRAWING NO: SH0015
REV: 3